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THE
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March, 1914.

RUSSIAN ENTERPRISES IN
NORTH EASTERN MONGOLIA

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AND THE GOLDFIELDS OF MONGOLYOR

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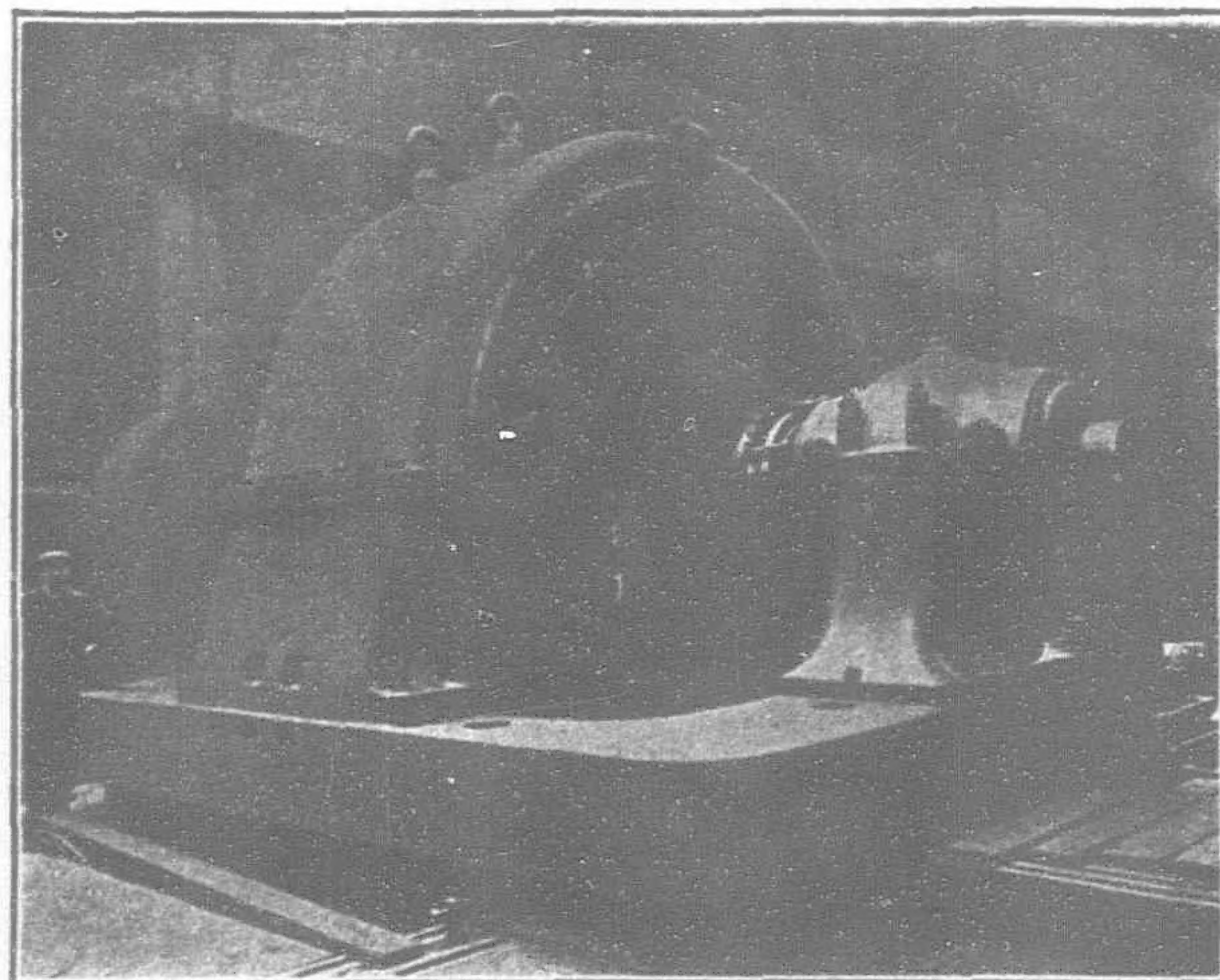
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THE FAR EASTERN REVIEW

COMMERCE :: ENGINEERING :: FINANCE

VOL. X.

SHANGHAI AND MANILA, MARCH, 1914

No. 10

SOME RUSSIAN ENTERPRISES IN NORTH EASTERN MONGOLIA AND BARGA

[BY LIEUTENANT G. C. BINSTED, THE ESSEX REGIMENT.]

So many wild statements have appeared in the Far Eastern press as to the commercial part now being played by Russians in Outer Mongolia that it may not be without interest to state in bald facts exactly what Russian enterprise was met with by the writer in the course of a journey of about 900 miles in length through Barga and North Eastern Mongolia. It is not the intention here to discuss the motives or soundness underlying the Russian Government's economic policy towards Mongolia, the failure of the Russian commercial circles to respond to the openings created for them, the mutual recriminations of the Russian official and commercial worlds, the avowed and the secret desires and policies of the various Mongol cliques, or the question as to whose interest it was that a state of war should be maintained on the frontiers of China. More time must elapse and more information become available before it would be anything but presumptuous to venture to extract the truth. Beyond individual facts for which I can personally vouch, I shall only make such few generalisations as I believe to be true and as have universally admitted by all the parties concerned, Russian officials and traders and Mongols. Lastly, everything here mentioned, unless otherwise specially stated, refers only to the area traversed by the writer's route, namely from Hailar via Gandjur and round the south of Dalai Nor to the mouth of the Kerulen, thence following the Kerulen as far as Tsetsen Khan's Urgo (seat), thence straight to Urga, thence to the Mongolyor Goldfields on the Upper Iro and so to Kiakhtha.

I will deal with Trade first. Leaving out of consideration for the present the town of Urga, where I did not stay long enough to make adequate enquiries, along the rest of the route not only was the absolute volume of Russian Trade remarkably small, but its increase on last year was also insignificant. Along the whole route of 700 miles between Hailar and Urga only 4 Russian trading establishments were met. Of these, 2 did not even boast of a hut, but had their whole stock disposed in one or two yurts. Of these 4 firms, 3 were concentrated at one point, San Peitzu Urgo, where last year there was only 1 Russian firm. Of the two new firms here 1 is a new arrival, whilst the other is only an offshoot from the firm of last year, founded by

two of the latter's shop assistants. This lack of increase in Russian trade would not be very surprising were it not for the magnificent opportunity created for the Russian merchant by the Mongol policy of heavily handicapping his Chinese rival with customs dues and, far more potent, by the brigandage and warfare which completely prevented the passage of goods from North China to supply the Chinese firms in Outer Mongolia. The result of the latter is that, on the same route between Hailar and Urga, out of at least 40 Chinese firms who were trading in 1912, in August and September 1913 only two had any goods to sell. Some firms had quitted and returned to China via the northern railway route, whilst in others the assistants were remaining on, sometimes to collect outstanding debts,

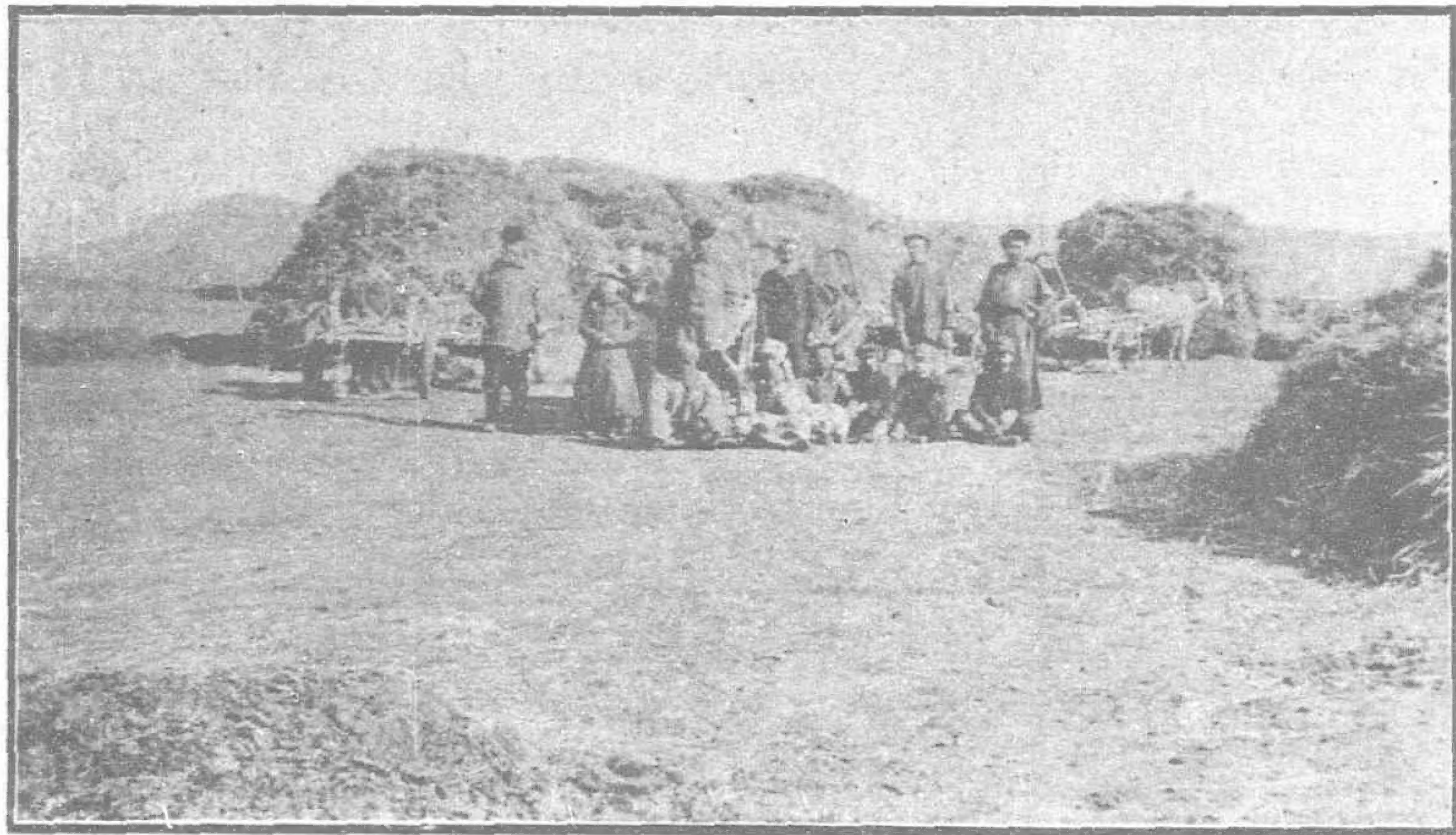
sometimes to wait and see what would happen later, sometimes because, having no money to buy railway tickets, there was no other alternative but to remain till the cheap route by bullock cart across the Gobi again became safe for the inoffensive trader.

Thus a route which in 1912 was served by over 40 firms, had now to depend on only 6, of which all but 1 were situated at the single point of San Peitzu Urgo. Had the Chinese been able to obtain goods by the usual cheap cart routes from Kaigan and Dolonor, the inertness of the Russians would not be surprising, because neither the 5% ad valorem duty on imported goods nor

the tax of 1 tael on every horse or head of cattle bought or sold, nor any other disabilities which the Urga princes could in reason be persuaded to impose, would prevent the Chinese being able to compete successfully with his rival. But the Chinese being deprived of his source of supply, the Russian trader was given a free field and it is therefore not surprising that Russian officialdom is disappointed at the way a situation so successfully prepared has been almost ignored, more especially because there has arisen in consequence a considerable revulsion of feeling amongst the Mongols against the new state of affairs. For the result to the Mongol was either that he could not obtain at all the goods to which he has become accustomed, or that, where he happened to be within reach of a Russian firm, he had to pay a much higher price than that demanded formerly by the Chinese.



The trading yurt of a Russian on the lower Kerulen in Barga, 5 day's bullock cart journey from Manchuria Station. Part of the raw products received in exchange are under the matting on the left awaiting despatch to the railway.



The pioneer Russian farmer in Mongolia with his family and farm hands in the farmyard.

That this situation cannot last is obvious and it will probably already be at an end when these words are printed. Russian commercial opinion generally is that the status of Russian industrial production, being still unable, except in years of a bad harvest, to cope with the internal demand, is not in a position to export to Mongolia in such a way as to supplant the wares with which the Chinese have hitherto traded. The last few years have seen excellent harvests in Russia; consequently the purchasing power of the Russian masses, whose phenomenal rate of increase is beginning to attract attention outside Russia, has been very great. Not only merchants, but officials also, now realise that the Mongolian market cannot be conquered with Russian goods. The proposal is, however, now afoot to the effect that government and merchants should cooperate to enable Russians to trade in Mongolia not with Russian goods but with wares with which the Chinese have been so successful in the past and to the use of which the conservative Mongol has become addicted. These goods are of British, German, American, Japanese and Chinese origin and are acquired by the Chinese traders in the great centres of North China. Two schemes are mentioned whereby the Russian merchant may be enabled to trade with these goods. The first is that the Russian Government should grant special facilities for the transit of these goods from Vladivostok to Kiakhta with remission of dues, so that they may be sold at a price able to compete with the same goods imported by Chinese via Kalgan when handicapped with the Mongol 5% ad valorem duty and the dues at the Chinese treaty ports and likin or transit dues. The other scheme is for the import of these goods into Mongolia from Manchuria Station. This avoids the necessity of entering the Russian Empire, a circumstance which entails all the formalities which make the Russian customs service so irksome to its own nationals. An excellent natural highway leads from Manchuria Station via the Kerulen valley to Urga, along which it has been proposed to institute motor traffic. As far as the road is concerned this would only entail the cost of one bridge or one good ferry.

In the meantime the Mongols, to prevent themselves being starved of their requirements in clothing and manufactured articles, will have to arrange for the safe passage of goods from China to the Chinese firms remaining in Khalkha. A large caravan was thus safely brought through to Urga in September

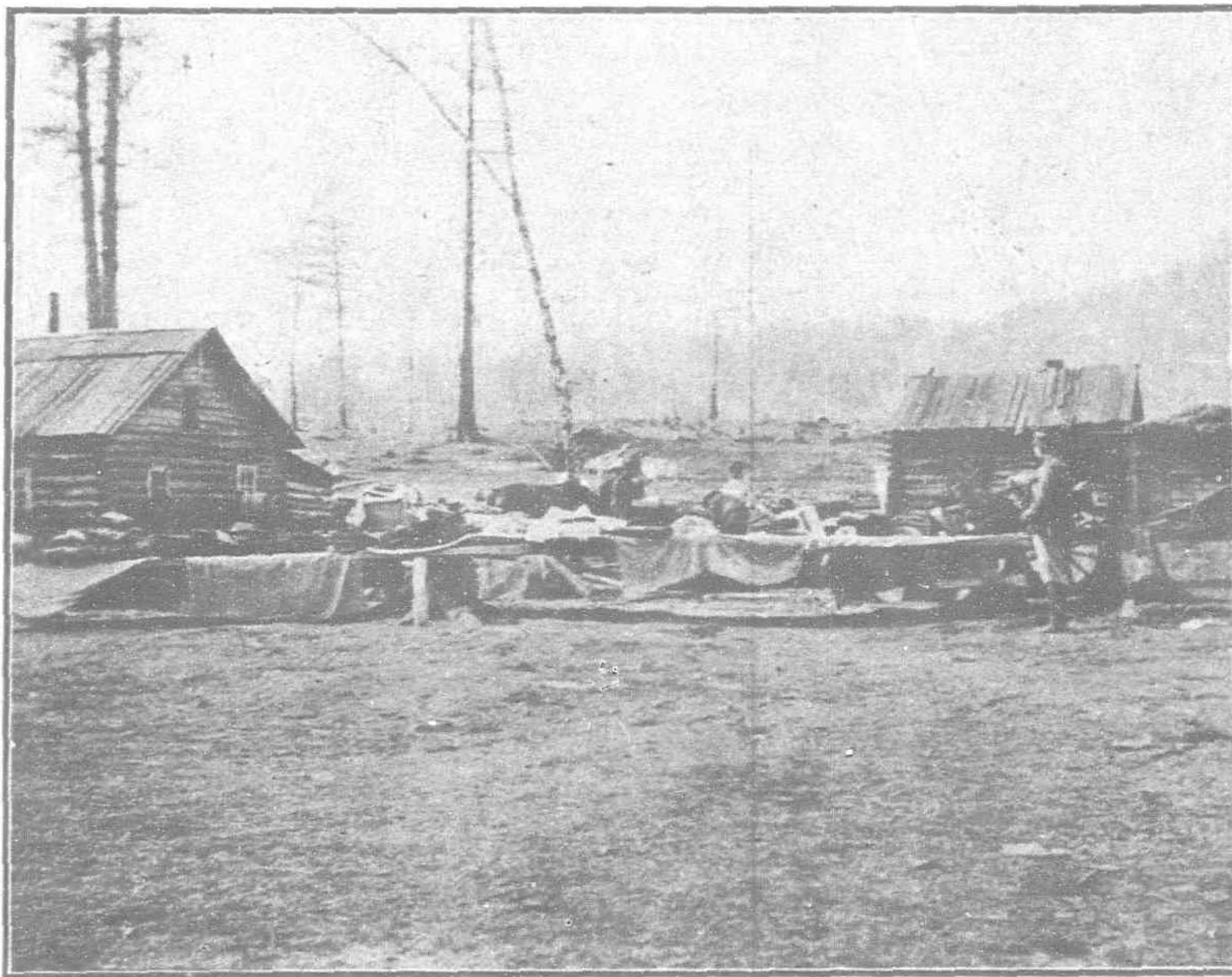
1913, the Bogdo Gegen giving special orders for its protection. The goods it brought were sold at once and must have done much to relieve the scarcity in Urga which was a matter of universal complaint at the time of my stay there in September. Russians no less than Mongols murmured bitterly against the high prices exacted by their fellow countrymen and the indifference shown in the matter of maintaining a stock of what was required by the town. At the time of my passage no kerosene oil or spirit was anywhere obtainable. Oats cost from Roubles 1.80 upwards per 36 lbs!

It was over a year and a half since a former visit to Urga. I expected to see a considerable increase in the number of Russian shops and houses, but in reality the change observed was very small. I was informed that many agents from Russia had arrived during the summer for the purpose of reporting on the desirability of opening business here, but that the majority had gone away with an unfavourable impression. The personnel in the firms already existing is not of a class likely to develop business on a large scale. In accordance with the provisions of the Urga Protocol, the Russian community in Urga has been constituted into a trade settlement with a council able to impose rates. Judging by the opinions of private residents, the innovation is neither popular nor successful.

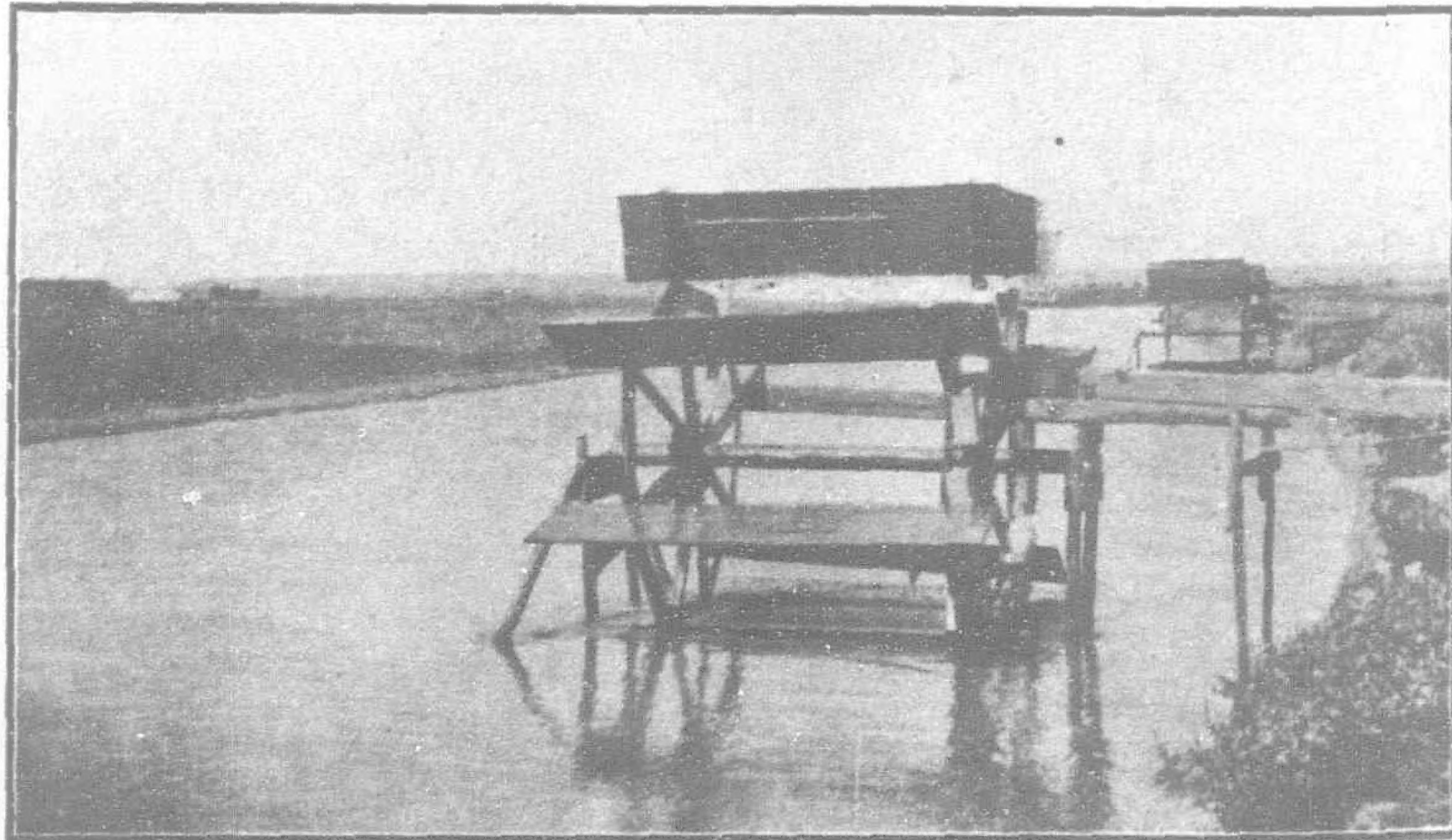
On the route followed from Urga to Kiakhta the only Russian shops met with where those maintained by the Mongolyor company at its goldfields for the convenience of its staff, employees and other gold seekers. Besides these shops itinerant Tartar hawkers come from Troitzkosavsk to sell at the goldfields.

In the special branch of live stock trading, I am unable to say whether Russian participation has increased or not. This trade is also combined with that of trading in manufactured goods, for the reason that in Mongolia barter still predominates and not payment in money. The Mongol in exchange for the manufactured goods he receives, gives live stock, its manifold raw products and the one article of foreign use which he is capable of making, namely felt. This barter system is what causes trade

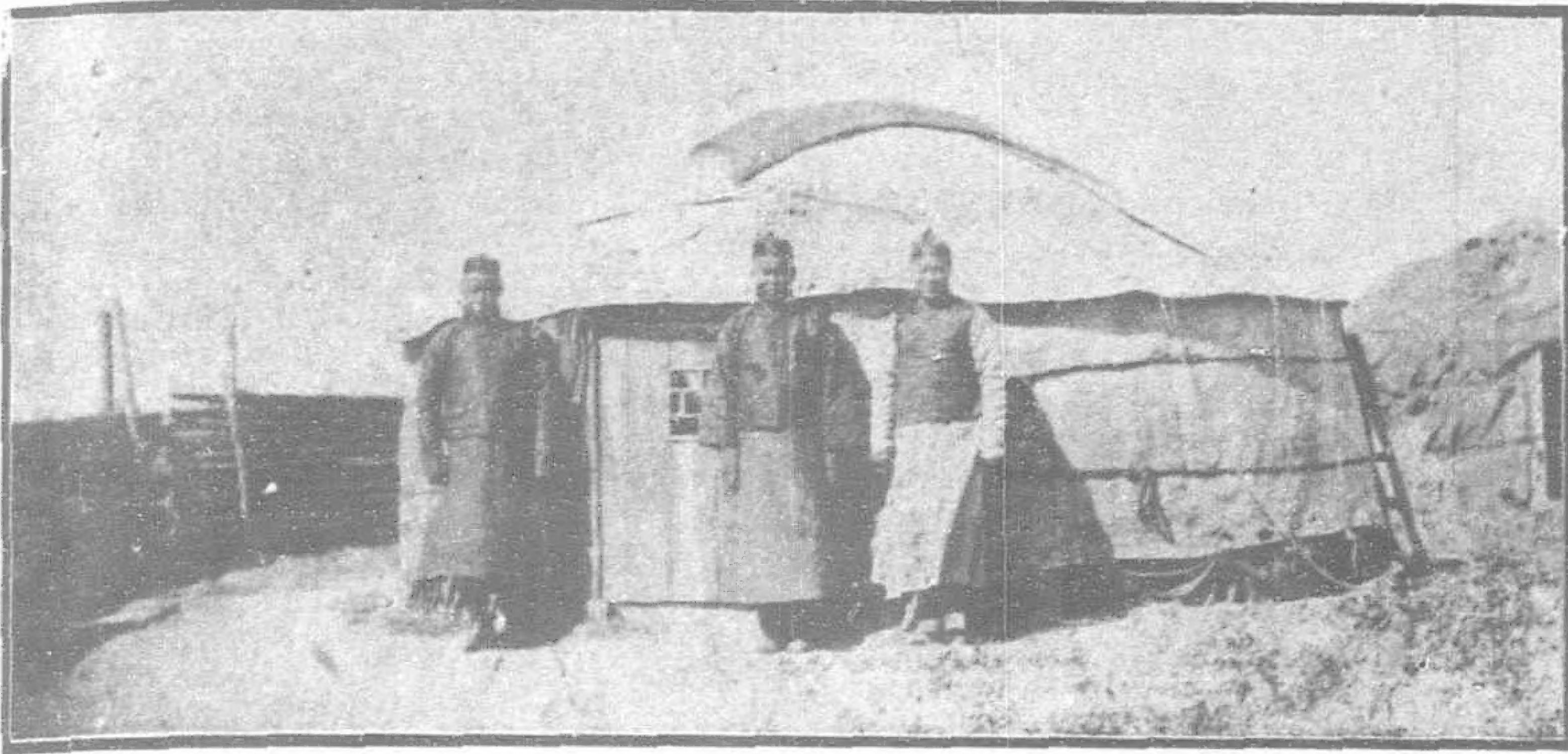
with the Mongol to be so very lucrative, for the nomad parts generally with his live stock and having never been allowed to learn what really good manufactured goods are like, accepts inferior goods at rates usually charged for good wares.



The outdoor stalls on which Tartar hawkers display the goods they have brought to the Mongolyor Goldfields.



Water wheels on the River Arshun for raising fresh water to the ponds in which the catch of fish is kept alive.



Three Chinese shop assistants belonging to a Peking firm at Tsetsen Khan Urgo.

Whether on the increase or not, considerable purchases in horses, cattle and sheep are made by Russians in Barga, the lower Kerulen valley, and Uchumuchin. The animals go to Manchuria Station and Hailar, a large part finally finding their way into Priamuria where they fetch a big profit in a country which depends for its live stock almost entirely on Mongolia.

Lastly mention must be made of the great annual Fair at Gandjur in Barga to which Russians resort in large numbers and which lasts during the first ten days of the 8th Moon (this year, 1913, August 31st—September 9th).

Much good should eventually be done by the veterinary detachments which are now despatched from the veterinary institutions at Chita, Harbin and other places into Mongolia, where they inoculate all cattle on purchase by Russian traders before it enters Russian territory. They also inoculate for Mongols if the latter can be persuaded to call in their aid, but at present ignorance and prejudice often prevent the Mongol from seeing the great advantages to his stock to be derived from a comparatively small outlay.

Agriculture

Along my route, and to the best of my knowledge in all Mongolia, the area under cultivation by Russians is limited to a very few acres, chiefly close to the border near Kiakhta. It is said that one of the clauses in the Agreement just (Nov. 9th) arrived at between the Russian and Chinese Governments stipulates that Russia, no less than China, agrees not to colonise Mongolia. It is evident to all those who know the difficulties which the Russian government has to overcome in its plans for colonising its own territory in Asia, that there could be no desire to encourage a leakage of colonists into Mongolia. If additional proof of this were required, it is furnished by the fact that the abolition of the 50 verst free trade zone has been made to apply not only to the frontier with Manchuria but also to that with Outer Mongolia. Formerly the few Russians living in Mongolia and also those on the Russian side of the border obtained great benefit by selling or using in Siberia the timber, fish, and hay which they were able to acquire in Mongolia free of all cost beyond their own time and labour. In future R.2.50 will be exacted for every pood (36 lbs) of fish that is sent across the border. Timber will be taxed and also flour.

Chinese agriculture has, on the other hand, been considerably developed in the valley bottoms of the Tola, Orkhon, Hara, Iro and their tributaries. Owing to the disabilities under which Chinese are now placed and the increased rent exacted by the

new central Urga Government, a large number of Chinese farmers have given up their farms and returned to China. The great majority however still remain. But the vacated farms would seem to offer splendid opportunities to Russian colonists, were they encouraged.

Around and between Urga and Kiakhta a large haymaking industry has sprung up of late years. It should be noted that in parts of Mongolia unaffected by foreign influences in this respect, no hay whatever is made. In this industry Russians take a certain part both in making and in trading with hay. Labour being expensive hay costs about 10 kopecks (2½d) per pood (36 lbs) to make. It is sold in Urga for 50 kopecks per pood and in Kiakhta for 40 kopecks.

Fisheries.

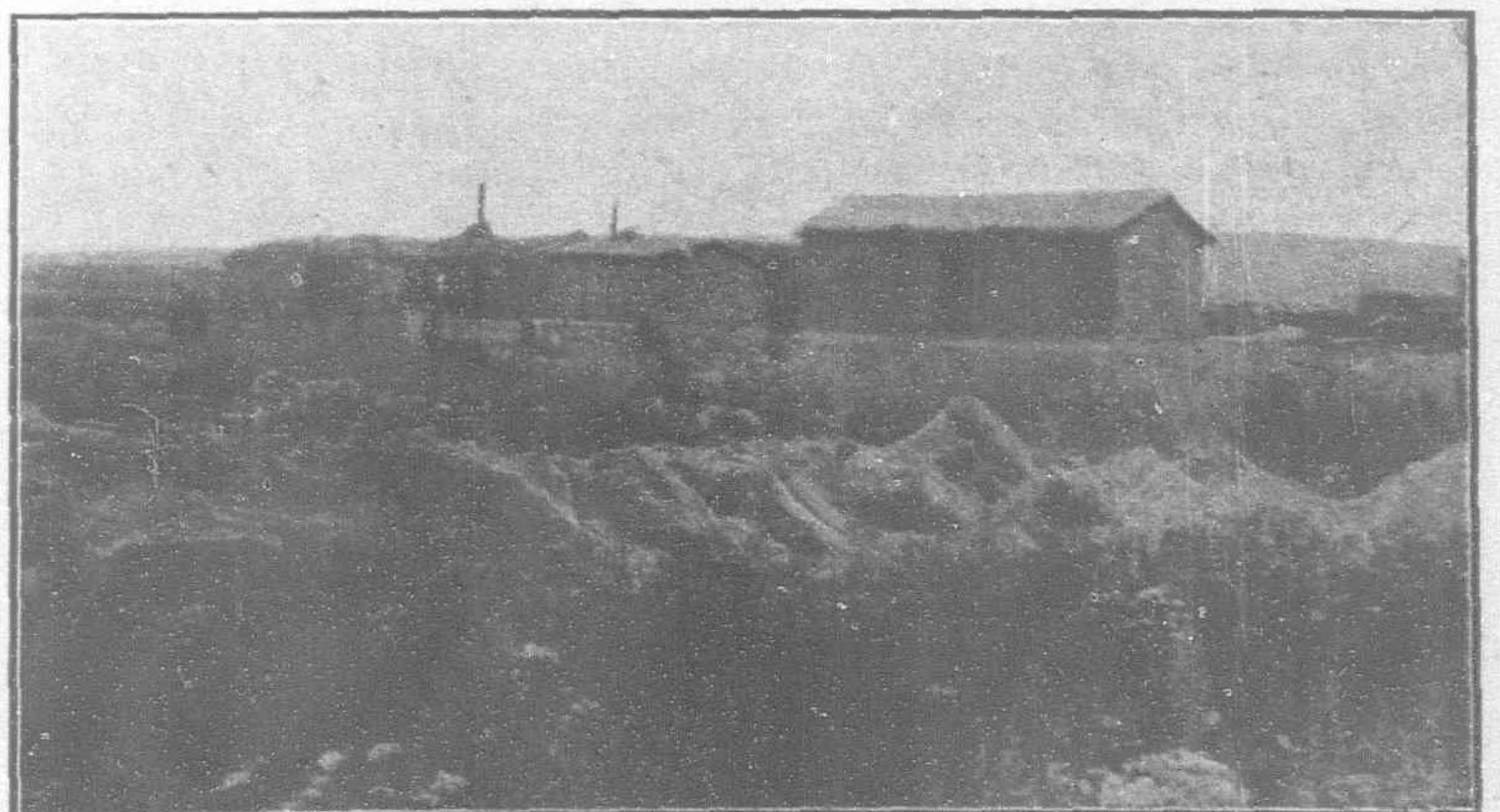
No true Mongol ever catches or eats fish and until lately the Mongols looked with hostility upon others who fished in their rivers. But contact with the outer world which sanctions such anomalies as a reincarnated Boddhisattiva ordering the training of an army on modern lines, has also caused the Mongol authorities to see the advantage of deriving revenue from the lease of fishery concessions. On the Tola, Hara, and Iro Russians fish free, but there are no reserved concessions nor fishery establishments. In Barga, however, I came upon

a very extensive fishing industry on the River Arshun. A few years ago a certain Russian named Borisoff who had considerable relations with the local Mongols, at last succeeded in being allowed to fish a small section on Dalai Nor. After the secession of Barga from the Chinese Republic, two or three other Russians last year also succeeded in obtaining concessions on the Arshun for which they only paid Roubles 100 per verst (2/3 mile) of river reach. Owing to the past inviolability of the fish, the river is extraordinarily rich. It is recounted that horses in fording would sometimes refuse to proceed owing to the almost solid stream of fish that knocked against their legs. Attracted by the success of the first comers, this year the concessionaries have risen in number to 27, working no more than 60 versts of the

river's total course of some 240 versts (160 miles) between Buir Nor and Dalai Nor. The Bargut authorities have raised the price this year to Roubles 600 per verst per year for a minimum lease of 5 years.



Huts made of birch bark and inhabited by the Chinese coolies at the Mongolior goldfields



The huts inhabited by Russians at the Arshun Fisheries.



The road made by the Mongolyor Company to connect its goldfields with Kiakhta.

The fish are caught in nets and transferred at once to large ponds, (called in Russian *sadók*, plural *sadki*) where they are kept alive till the winter. These ponds are supplied with fresh water by means of water wheels on the river which raise the water into troughs along which it runs to the ponds. Nevertheless the fish are very crowded and some die of want of space. When permanent hard frost has set in, the fish are taken out of the pond, thrown on to the ice where they freeze immediately and are then packed for despatch via Manchuria Station to all parts of Siberia and Russia. The demand always exceeds the catch, in spite of the richness of the latter. The chief species are those which are known in Russian terminology as *sazán* (a delicacy, Alexandroff's Dictionary translates as carp?), *som* (*silurus*?) *Shchúka* (pike), *karass* (crucian carp?).

The Russian concessionaries come from all parts of Siberia and Russia and are mostly men who have had fishery experience there. A large proportion are Jews. The process of obtaining a concession here is as follows:—the Russian chooses his site on the spot, obtains from the local Tzangin (a Mongol local official) a certificate, repairs to the yamen of the Amban or Viceroy of the Urga Hutukhta in Hailar and there obtains his lease. Russians unanimously testified that every forward step which depended on the Bargut authorities could only be made after conceding large bribes, without which reasons were always found for delays which cost the concessionaire even more money than the bribe. The concessionaires also quarrel much amongst themselves and mutual charges are made as to the illegal use of wire net barriers in the river bed to prevent the passage of the fish up or down stream. In autumn the fish move from Dalai Nor up to Buir Nor, returning downwards next spring. Some concessions occupy as much as 15 versts of reach. They all have at least 5 Russians in the personnel, but the mass of the labour employed is Korean, Chinese, and Japanese, while one master has brought with him from Tomsk Government a number of Ostiaks. All employees may use as much fish as they like for their own consumption. All other food and everything else except quarters they provide themselves out of their monthly wages which are as follows:—

To a Chinese R. 25 to 20
 „ Korean R. 30
 „ Ostiak R. 30 to 25
 „ Russian R. 40 to 25

The employees are bound to serve for a whole season if the employer desires to retain them. The master stocks necessary provisions which he sells to his employees. Prices are such that a Chinese has to spend every month about R. 4.50 upon his food exclusive of the free fish. The Korean is

regarded as the most desirable employee, as he is easy to manage, does not drink and works well. The Chinese has the reputation of being insolent and truculent, while the Russian's power of work is somewhat detracted from by the uncertainty as to his soberness.

The figures below illustrate the catch at those concessions which happened to lie upon my road.

In 4 versts during summer of 1913 up to August 18th 110,000 fish caught. Last year 5,000 poods of fish (over 80 tons) were put into one pond.

The personnel live in log cabins or mud huts often half underground. The character of these buildings hardly seems to indicate an intention on the part of the concessionaires to build up a permanent industry, and the mutual competition to catch as many fish as possible each season would also seem to confirm the opinion that the employers only wish to make a fortune while present abundance of fish lasts, regardless of the future.

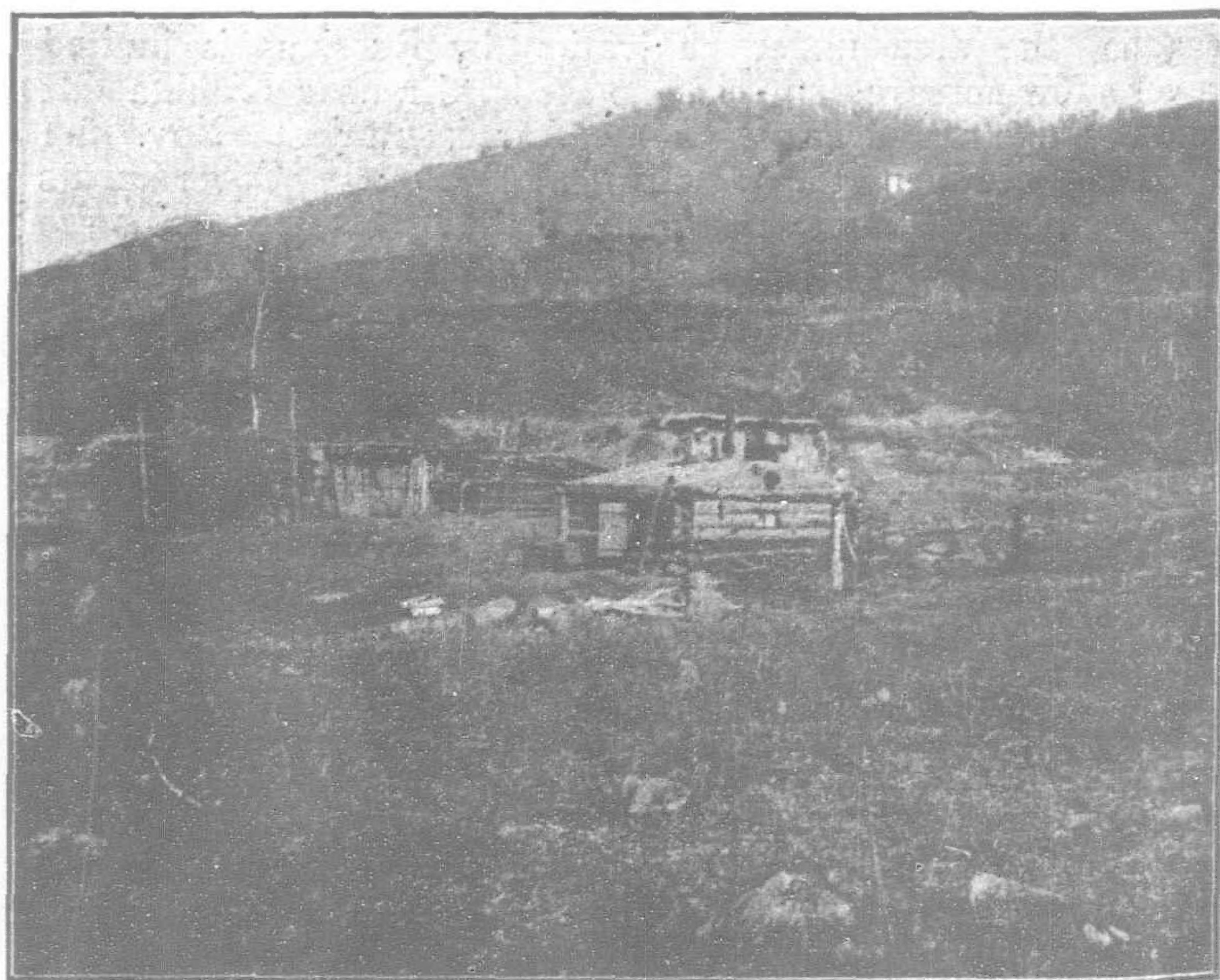
Mining

Nowhere was any mining met with except at the goldfields of the Mongolyor Company in the basin of the river Iro. As is well known this company was formed and registered in Russia by von Grote and acquired from the Chinese Government the exclusive right to prospect for and exploit all gold in the two Aimaks of Tushetu Khan and Tsetsen Khan. Lately I. V. Pokrovski has been appointed local Director in chief of the Company in place of von Grote, who left the Company owing to his dislike of the new Mongol Government.

The Company now works the following fields in the Iro basin:—

Iro	Narin-Harganati
Tologoika	Yalbik
Mogoi	Ulento
Harganati	Nilkho

whilst outside the Iro basin work is already carried on in the valleys of the Kudara (a tributary of the Chikoi in Mongolia), Tereltzi (tributary of the upper Kerulen), and Hera Gol at Tzo Modo. Prospecting, which is chiefly carried out during the winter, is being further extended in the Kerulen and Onon basins and S. W. of Urga. Mr. Pokrovski himself hopes next year to reconnoitre the Onon and Uldza areas. The administrative headquarters and head offices of the Company have just been moved from Urga to the Iro Goldfield. These are connected by telephone with the other fields in the Iro basin, but the projected plan for a telephone line to Urga has not yet been realised. A map of the area from Kiakhta to Urga has already been partly made and is being completed. This survey will later be extended to the new areas in which it is



Chinese log cabins at the Mongolyor goldfields.

hoped that gold will be found. A postal service connects the Iro headquarters with Urga. All the gold obtained by the company is sent via Kiakhta and Russia to Belgian and French firms. The Russian Government is a somewhat unsatisfactory purchaser for the reason, that they refuse to pay on delivery for the total amount received; they only consent to pay for the nearest round number quantity in weight below what is actually delivered. As gold is very expensive when compared to its weight, it often happens that large sums of money are left owing to the vendor until the next consignment of gold arrives. The Belgian and French firms on the other hand pay at once the exact price and even at a somewhat higher rate than the Russian Government, for the total amount delivered at each consignment.

The Mongolyor Company uses 3 methods for obtaining its gold. These are: (1) Work by the Company itself by means of labourers hired by the day. (2) The lease of whole areas to capitalised organisations who find all the necessary capital for exploitation, pay no rent, but are bound to sell all gold obtained to the Mongolyor Company at rates from Roubles 24 to 27 per Chinese liang of weight. (3) Lease of small areas to minor combinations of labourers who are provided by the Company with the necessary equipment and are bound to sell all gold to the Company for about R. 24 per liang. To its own day-labourers the Company pays a daily wage of R. 1.00 to Russians and R. 0.80 to Chinese. The Company is now instituting more modern methods with machinery and horse traction for the earth carts. Inspectors are appointed to prevent any stealing of gold by day-labourers or by the minor lessees of areas. Sealed dredgers are also used for the purpose. All workers on the mines pay to the Mongol Government a tax of R. 1.00 per head per month for the right to work on the fields, in exchange for which they receive a form of passport.

On the whole Chinese still predominate somewhat in the goldfields though large numbers have departed recently partly owing to the disabilities imposed upon them by the Mongol Government, partly owing to new regulations by the Company whereby, instead of receiving a modicum of food during the winter, they are now left to find a livelihood for themselves, and

partly owing to the great recrudescence of brigandage in the neighbourhood. The latter circumstance accounts for the departure of very large numbers not only of Chinese but also of Russian workers from the goldfields. This summer brigandage became so bad that about 100 Russian soldiers from Kiakhta were sent into the area, and were distributed from the Khangai range N. W. of Kornakovka eastwards to the Iro Goldfield. The increase of brigandage is itself chiefly due to the fact that now numbers of Chinese are left without means of livelihood during the winter.

The following figures give the yearly find of gold in the Mongolyor fields to the nearest pood:—

1901-1908 average	11 poods
1908-09	71 "
1910	120 "
1911	120 "

The yearly profits of the Company were as follows:—

1907-08	R. 14,603
1908-09	R. 171,807
1910	R. 373,877
1911	R. 338,431

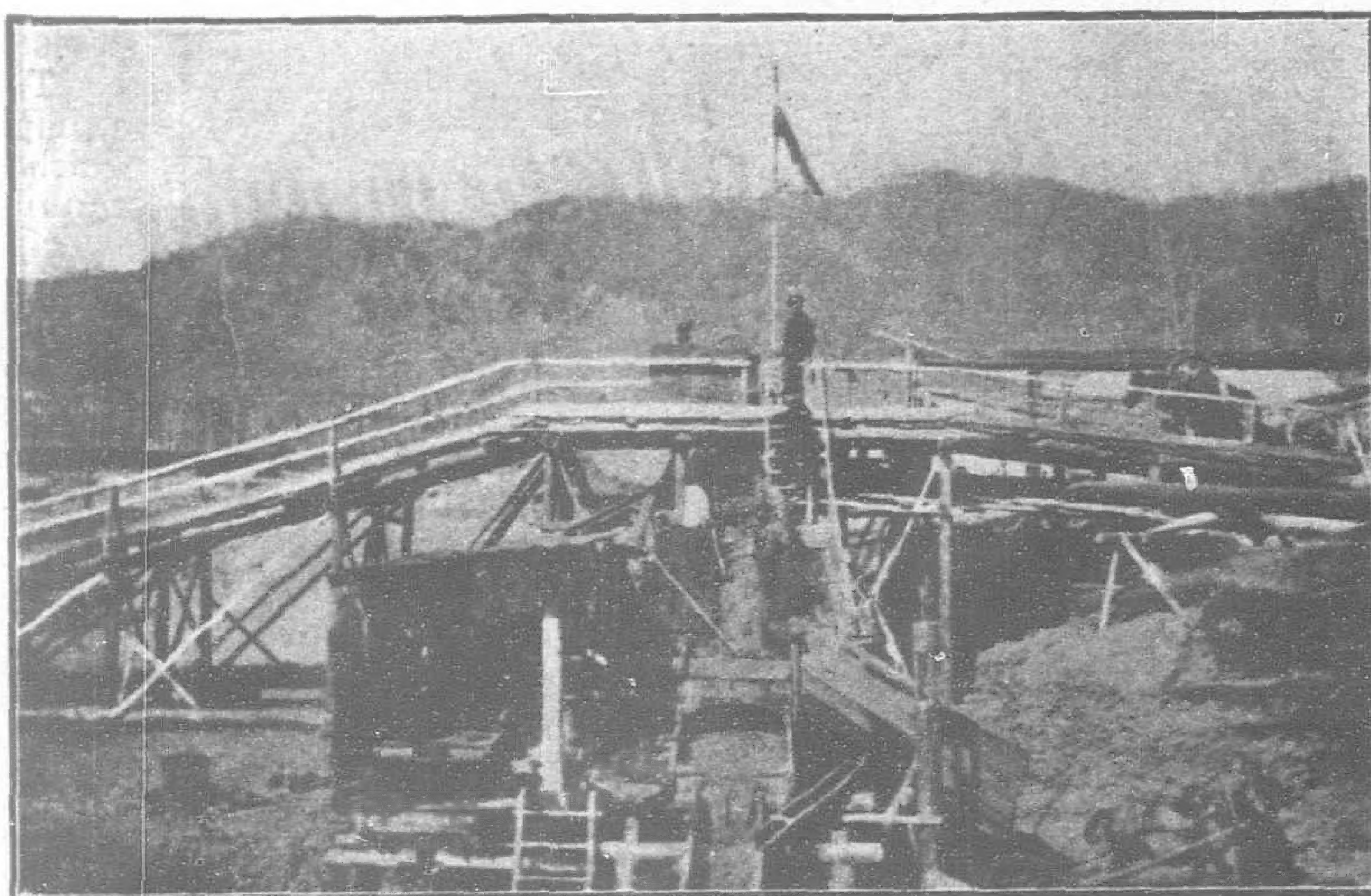
Hunting

At the close of the harvest in early autumn numerous parties of peasants from the frontier villages in Transbaikalia leave their homes for two or three months' hunting in the forest and mountain country of the Kentei. With the help of specially trained dogs they succeed in shooting large numbers of squirrel, bear, tarbagan (marmot) and sable. These hides and furs they sell on return at the local fairs in Transbaikalia, whence the wares find their way chiefly to the great yearly mart at Irbit.

Beyond what has been mentioned above, no other Russian enterprise was encountered. With the exception of the

Mongolyor Company, none of the operations could be classed as very important.

[The photographs accompanying this article were taken by Lieut. Binstead.]



The gold washing machinery used by the Mongolyor Company.

ELECTRICAL SUPPLY FOR MANILA

The *Manila Times* states that Mr. C. M. Swift, President of the Manila Electric Railroad and Light Company, has applied for a franchise for the development of the water power of the Caliraya river, which will involve an expenditure of P. 4,000,000.

The request for this franchise, forwarded to the Governor General some time ago, was by the chief executive referred to the newly created board of public utilities commissioners. Certain minor changes in the terms under which it might be granted were made by the board, and these were agreed to by Mr. Swift. The form in which the matter came before the Commission therefore, embodied these changes, and it carried the recommendation of the board that the franchise be granted by the Legislature.

The grant in perpetuity of the water power of the Caliraya river is already in the possession of the Manila Suburban Railways Company, but it has been assigned to Mr. Swift, and the present franchise does no more, in effect, than to confer on him the right to bring the power across the country into Manila. It gives him the powers necessary for the securing of right of way for transmission, and provides that he must organize a corporation, subject to regulation and control as a public utility.

The Caliraya river is one of the tributaries of the Pagsanjan river. The diversion dam would probably be built at a point about two miles in a direct line from Pagsanjan falls, and since the falls are on another branch of the river, they would not be interfered with by the project. From the

diversion dam the water will be carried through a series of tunnels, reservoirs and canals to the brink of a steep slope, and there it will take a drop of nearly 800 feet. This big drop is expected to develop ample power for the electrical needs of the city of Manila for years to come.

The transmission lines will come from Pagsanjan across an arm of Laguna de Bay, and then along the north side of the lake as nearly as possible in a straight line through Pasig and into Manila. Thus they would not touch any considerable settlement except Pasig, which already has its electrical system, and thus will not need the power which the proposed lines might furnish. Broadly speaking, it is for the city of Manila alone that the Caliraya river source of power will be developed.

The franchise asked for is for 99 years. It has an important limitation, however, providing that if the city of Manila should take over the Manila electric railroad and light company in 1927, then it may also take over this power development.

BREAKWATER AT CHEFOO

A Chefoo correspondent states that Mr. van Lidthe, the Consulting Engineer to the Harbour Commission, has produced a preliminary plan of the breakwater and is now busily engaged in elaborating and improving it. There is no doubt that the Commission has been very fortunate in its engineer for no one could have approached a task, which is admittedly difficult, with more keenness and resource. The plan and financial scheme will now go to the high authorities at Peking for acceptance or amendment, and then Chefoo will certainly be a step nearer the much-talked-of breakwater.

REVIEW OF PHILIPPINE TRADE FOR 1913

[BY JOHN R. ARNOLD, OF THE EXECUTIVE BUREAU AT MANILA]

Detailed figures are now available for a review of the trade of the Philippine Islands for the fiscal year 1913 (July 1, 1912, to June 30, 1913). The total volume of trade, while showing a satisfactory increase over the preceding year, was slightly less than the figures for the first 6, or even the first 10, months prognosticated. On the basis of the former an estimate of a final total of \$120,000,000 was made; on the basis of the latter an estimate of \$112,000,000; the actual figure was \$110,010,859.

This falling off as compared with the advance estimates clearly points to the operation of conditions tending to restrict commercial enterprises during the latter months of the year and affecting both imports and exports. The most important change in imports was the marked contraction in receipts of rice, which amounted to but \$7,940,857, as against \$10,560,949 for the preceding year—a drop of nearly 25 per cent. This decrease in importations of the principal cereal food of the country means, of course, an immense saving to the population at large and is directly traceable to a particularly abundant Philippine crop at the last harvest—occurring about the middle of the year—and marking the end of the disastrous shortage which followed on the severe drought of 1911-12. This part of the decrease in estimated imports in itself is therefore not in any sense an unwelcome phenomenon.

In exports the falling off from the estimates was due to a drop in price of abaca (Manila hemp) toward the end of the year, to the poor quality and resulting low price of the sugar crop, and to a diminution of the copra output as the accumulated result of typhoons and drought in 1911 and 1912. Both imports and exports have also been affected by the widespread local business stagnation of the last few months, arising from the fear of political changes which would react unfavorably on the economic condition of the islands.

A FAVORABLE VOLUME OF TRADE

The final figures, however, though smaller than anticipated, are not unsatisfactory. The total volume of trade, as stated, was \$110,010,859, representing an increase of a trifle less than 5 per cent. over the figure for 1912, which was \$104,869,816. The value of imports (\$56,327,533 in 1913 as against \$54,549,080 in 1912) increased about 3½ per cent. and the exports rose (\$53,683,326 as against \$50,319,836) a little more than 6½ per cent. The gross increase in imports, however, was materially affected by the reduced imports of rice during the latter part of the year; eliminating that commodity other imports during the fiscal year just closed amounted to \$48,386,676, as against \$43,980,031 in 1912, a gain of 10 per cent. The receipts of rice for the year 1913 as a whole formed about the same proportion (averaging 15 per cent.) of the total imports as they formed every year from 1905 until the crop failures brought about by the severe drought of 1911-12. This may, therefore, be considered, about the normal percentage under present conditions; and it seems too early to prophesy, as has to some extent been done locally, that the decrease during 1913 indicates a permanent advance toward the solution of the problem of the islands providing their own food supply.

FURTHER GAINS BY AMERICAN COTTON GOODS

The gain in the year's imports is the result of increases in most classes of merchandise, with the single exception of rice. There was a 25 per cent. advance in importations of cotton goods—from \$9,246,595 in 1912 to \$11,583,638 in 1913, the highest figure yet recorded. Cotton goods again held first place among Philippine imports, which position they had usually taken, but from which they were temporarily displaced by rice; and the increase which they show accounts for more than half of the gain in all imports excluding rice.

Of the islands' total purchases of cotton goods during 1913 there came from the United States \$6,827,082 worth, or 59 per cent.; this was as against 44, 39, and 24 per cent. for 1912, 1911, and 1910, respectively—these being the three years that have elapsed since the establishment of free trade between the United States and the Philippines—and as against a share of about 7½ per cent. for 1909 and 1908. Such proof of the beneficial effect to American trade with the islands following the removal of the former restrictions seems to require no comment. Imports of cotton goods from the United Kingdom decreased from \$3,499,350 in 1912 to \$2,325,460 in 1913, while those from other foreign countries during the same period declined, remained stationary, or at the most advanced very slightly.

INCREASED IMPORTS IN MANY LINES

There were marked increases also in imports of iron and steel products, flour, illuminating oil, coal, leather goods, chemicals, drugs, and dyes, and vegetable fibers. The only important items showing decreases were meat and dairy products and live cattle. The losses in the latter were due to the continued effect of the application of quarantines in connection with the campaign against cattle diseases. This affects particularly shipments from Indo-China and from China and Hongkong, and to a less degree those from Australasia.

Imports of iron and steel products rose in value from \$6,031,603 in 1912 to \$6,608,914 in 1913, or 9.6 per cent. More than four-fifths of this gain was accounted for by imports of machinery (which formed 40 per cent. of the total), and more than a third of this increase in machinery was in sugar machinery alone, over one-half of which was credited to the United States and Hawaii. There were also marked advances in imports of steam locomotives, traction engines, boilers, and mining machinery, which (except that the last item came chiefly from Australasia and Hongkong) were shared by the United States and the United Kingdom. There was a heavy decline in imports of sewing machines, and small increases in those of bar, rod, and structural iron and steel, tools, enameled ware, pipes and fittings, screws, nuts, bolts, and rivets.

PURCHASES OF FOODSTUFFS, CHEMICALS, AND CEMENT

There was a falling off of 6.6 per cent. in imports of meat and dairy products, for which no reason other than ordinary fluctuation of demand can be assigned. It was felt principally in meats. The receipts of breadstuffs rose from \$2,563,512 in 1912 to \$2,955,552 in 1913, or 15 per cent. This advance centered in wheat flour, imports of which were \$471,000 larger than in 1912; the United States absorbed this increase and gained on the principal competitor, Australasia. The increases in leather goods (principally boots and shoes) and in chemicals, drugs, and dyes, were largely to the advantage of the United States. Relatively important gains were also shown by fish and fish products and cement; to the United States is credited more than half of the increase in the former, but in the latter the gain went to Germany, principally at the expense of Hongkong. It is expected that there will be local competition in the cement market within another twelvemonth.

EXPORTS AND PRICES OF HEMP

The great bulk of the exports from the Philippines (92 per cent. during the year just closed) continues to consist of the four staple products, abaca (Manila hemp), copra, raw sugar, and tobacco and tobacco products. Shipments of abaca aggregated 153,000 metric tons (metric ton 2,204.6 pounds) in 1912 and only 144,000 tons in 1913; but during the same period there was an increase in value from \$16,283,510 to \$23,044,744. In 1912 the value of the abaca exported was slightly less than that of the copra; in 1913 it was nearly twice as great. In 1912 it amounted to 32 per cent. of the total exports; in 1913 to 43 per cent. Its average price in the former year was \$106 per ton; in the latter \$160.

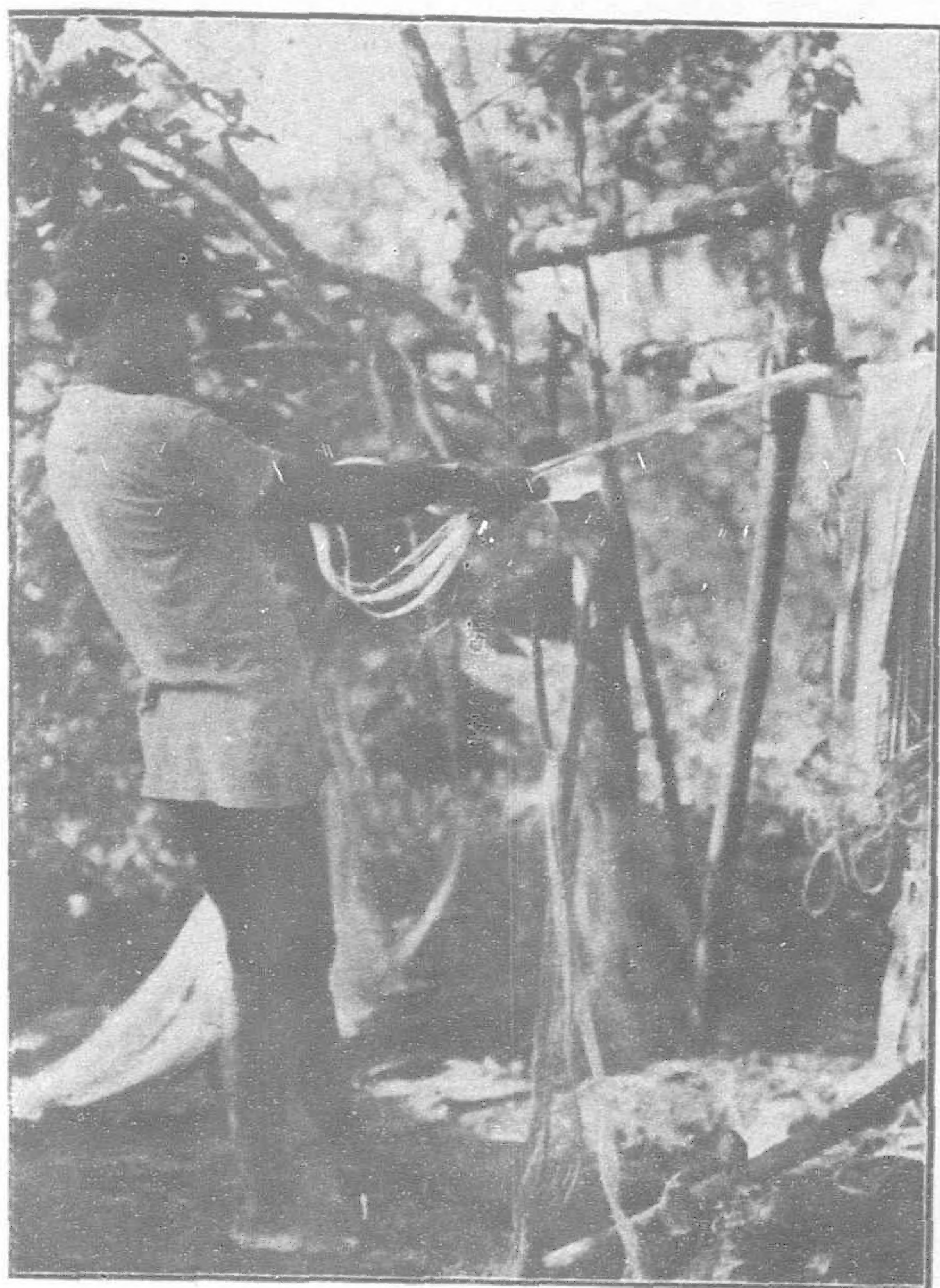
A committee which had been engaged in investigating the abaca industry stated in a report rendered in April 1913 that the great increase in price which first became noticeable about the beginning of the year under consideration, was apparently of a speculative nature and not justified on a normal market. It pointed out that both the very large increase in consumption and the decrease in supply from bad climatic conditions, which had been predicted, had in all probability been overestimated. This opinion proved to be justified, at least to the extent that the boom was not maintained at the same level throughout the year. The total exports of abaca fell from \$12,554,302 for the first six months to \$10,490,442 for the succeeding six months; and the average price per ton, after running from \$175 in January up to \$226 in February, and fluctuating between \$176 to \$197 during the three months following, declined in June to \$152. Throughout July prices were reported very unsatisfactory (averaging less than \$120), and exports fell off materially. Recently there has again been an improvement, but it is too early to predict the effect of any of these changes on the figures for the current fiscal year.

It should, however, be noted that, so far as any of the prices for periods before the end of June, 1913, are concerned, the lowest was little below the general average for the year and was higher than the highest



Coconut Grove, Magdalena, Laguna. Almost fruitless on account of drought and close planting. Note Filipino walking up the trunk without use of cord at ankles or waist.

reached during the last six months of 1912. However just may be the committee's criticism of the considerable rise in prices early in the year, it seems safe to say that the recovery from the extremely depressed condition of the trade (which reached its worst phase in 1911 and 1912) is more than merely temporary.



Stripping Abaca. ("Manila Hemp") "Davao Method," Santa Cruz, Davao. Note the pile of "laxa," or leaf-bases (at right) for stripping, and one being pulled through under the sharp bamboo knife.

PLANS FOR IMPROVING THE POSITION OF MANILA HEMP

At the same time the general conditions of the abaca industry, as regards grading, improvement in methods of stripping, and reorganization of the provincial buying trade in such manner as to insure a fair price to cultivators, remain unsatisfactory. In December, 1911, the Philippine Commission appointed a committee of two of its members to report on the situation. This committee did not render its report until April, 1913; it then recommended as the most necessary measures a campaign of education in cultivation, cleaning, and grading the fiber, and in determining the proper price; the formation of co-operative unions of producers with possible future assistance from the Agricultural Bank; and the establishment of a system of official grading and stamping. This last recommendation is opposed by the large hemp dealers, and the whole question may be made the subject of a future report, though lack of space prevents its further discussion here.

To carry out the program the committee recommended legislation standardizing the grades of abaca, penalizing the export of inferior or unclassified qualities, and providing for the appointment of Government classifiers and for the reimbursement of their salaries and of other expenses by charges for classification and stamping.

The abaca shipped to the United States during 1913 was about half the total for that year, slightly more than in 1911 and 1912, and slightly less than in 1910; the fluctuations in this respect have not been very great. The same has been chiefly true of the proportions of the exported product taken by the principal foreign countries. The demand from Germany and Hongkong, however, dropped sharply during the past year, while that from Spain and Japan increased.

BUSINESS IN COPRA—DOMESTIC OIL MILLS

Exports of copra, which reached their highest point in 1912, fell off markedly during the fiscal year just closed, the actual figures being \$16,514,749 and \$11,647,898, a loss of nearly 30 per cent. The average price during 1913, however, was the highest yet recorded. This would appear to indicate that the decrease in exportations was due to a failure in supply rather than in demand, and this supposition is confirmed by the data at hand in regard to the serious damage to the coconut plantations in 1911 and 1912 by severe typhoons (hurricanes) and by an unprecedented drought. The coconut palm does not produce commercially until 7 to 10 years after planting, so that recovery from the effects of disasters like these necessarily takes a considerable time. Moreover, no important copra-producing districts were freshly opened by railroad extensions, as was the case with the Laguna-Tayabas area in 1912.

The decrease in copra exports was much the greatest in those to the United States, the quantity and value of which both declined more than

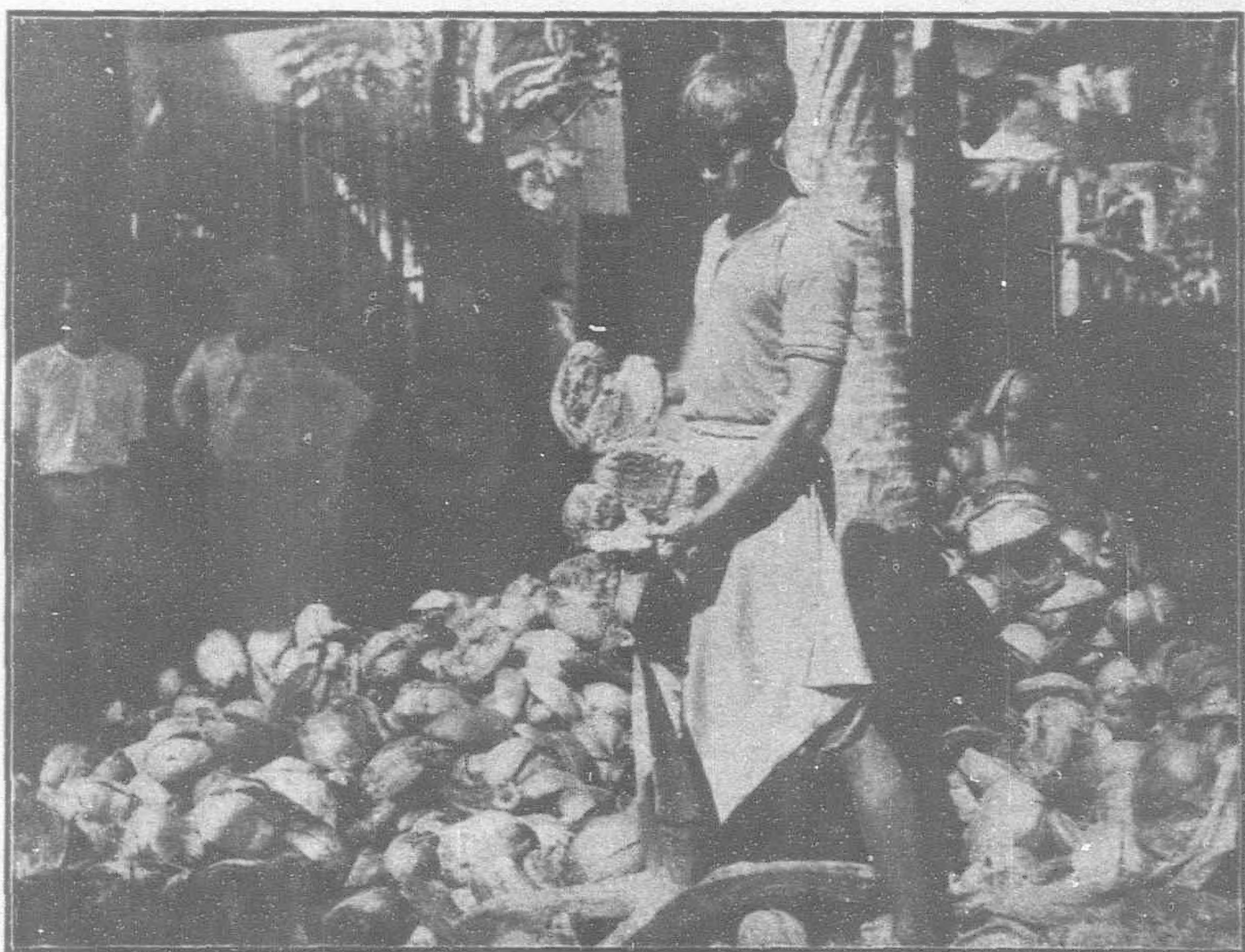
two-thirds. The foreign countries decreases were less marked; to France, which is a large customer, the loss amounted to 30 per cent. in quantity and 25 per cent. in value. The immediate cause for the particularly heavy falling off in the trade with the United States appears in the figures compiled in regard to average quotations per ton. For shipments to the United States the average price dropped slightly during the year—from \$96.82 to \$96.55—while for the total exports it rose from \$97.52 to \$103.03. Recovery of the supply is to be certainly predicted, though it may not be complete for several years; but whether this, in view of the apparent unwillingness of American importers to pay increased prices, will restore the trade with the United States to the figure reached in 1912, it is difficult to foretell. An increased supply may possibly bring the price down again slightly; but, as the general level has risen without material fluctuation from \$45.81 in 1903 to the present record of \$103.03, and the general quality of the product is undoubtedly improving, it seems rather doubtful if any such reaction in price will be a factor of importance.

Only a trifling proportion of the copra output of the islands has ever been shipped in other than a raw state, but the fiscal year just closed shows a remarkable advance over any preceding in the export of the principal derived product, coconut oil. Shipments for 1913 amounted to 1,302,275 kilos (2,871,024 pounds), valued at \$315,513, as against none for the preceding year and only 63 kilos (139 pounds) for 1911. There is now a large oil factory with modern equipment well established in Manila, and it seems probable that there will be an increased tendency to retain in the islands at least this portion of the profits of working up the raw copra, which have hitherto gone chiefly to Europe.

THE SUGAR TRADE

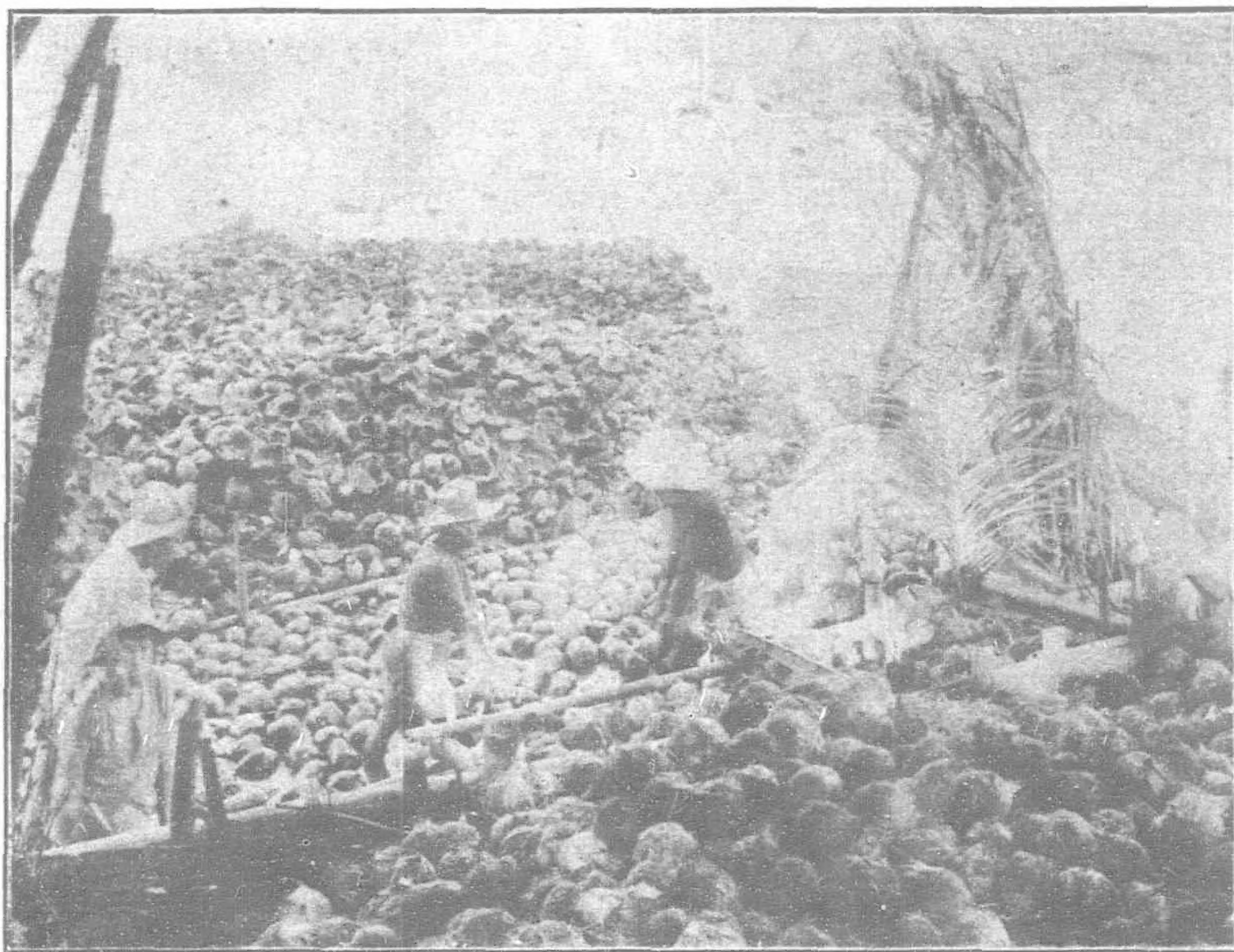
Exports of raw sugar increased in quantity from 186,016 metric tons in 1912 to 212,540 tons in 1913, a gain of 14 per cent., but owing to the poor quality of the product and the consequent low prices, decreased in value from \$10,400,575 to \$9,491,540, a loss of 9 per cent. The average price received per ton was but \$44.66, as against \$55.91 for 1912 and an average of \$5.554 for the three years preceding. Low as it was, however, it was still higher than that received during any year from 1899 to 1909, the general average for that period being only \$38.41. It is clear, therefore, that much of what was agined as a result of the establishment of free trade with the United States in 1909 has not been lost.

The general condition of the industry throughout 1913 was in many respects unsatisfactory. The planters were very generally in financial difficulties, which, however, were at least partially relieved at the end of the year by loans of public funds placed at their disposal by the Government through the Bank of the Philippine Islands. It should be noted, moreover, that the year has seen noticeable activity in projecting and erecting central plants for producing an improved quality of sugar, though some time must necessarily elapse before their beneficial effects will appear in the value of the export product. The effect of the untoward conditions that existed affected especially the exports to the United States, which fell off nearly one-half in quantity and more than one-half in value, and composed only 40 per cent. of the total shipments as against 85 per cent. for the preceding year. The bulk of the remainder was taken as usual by



Husking Coconuts, Magdalena, Laguna Province. Filipino plow-point in evidence as the best tool for splitting and loosening the husk. 800 to 1,500 nuts can be husked per day on one of these points.

Japan, Hongkong, and China. As one result of the decrease, the exports this year fell far below the maximum quantity admitted free under the tariff of 1909. The percentage which the sugar exported to the United States formed of this maximum (300,000 tons) was 54.66 in 1912 but only 27.66 in 1913. Since, however, the new tariff of the United States does away with this maximum altogether, the question is likely in the future to cease to be of practical importance.



Coconut Husking, Pagsanjan, Laguna Province. Nuts floated to huskers who stand in water at edge of river. One man can husk about 1,000 nuts per day.

TOBACCO PRODUCTS

The exports of all classes of tobacco products showed satisfactory gains during 1913. Shipments of cigars increased in number from 175,320,000 to 207,396,000, or 18 per cent., and in value from \$2,660,061 to \$3,356,748, or 26 per cent. The average price received was \$16.18 per thousand, the highest yet recorded; for the three preceding years the average prices were \$15.17, \$12.86, and \$15.17, respectively; while for the period from 1899 to 1909 the highest average for any year was only \$9.71. The figures for 1913 are particularly satisfactory as they show complete recovery from the slump of 1911, which followed the excessive expansion induced by the passage of the tariff act of 1909. In 1910, shipments rose suddenly from 116,000,000 to 196,000,000, only to fall to 132,000,000 in 1911. In 1912 the record of 1910 was nearly approached, but during the year just closed it was surpassed. This increase in cigar exports was nearly all absorbed by the United States, the gain in the shipments to that country almost equaling the gain in total exports.

The quantity taken by the United States advanced from 71,973,000 in 1912 to 101,647,000 in 1913, or 41 per cent.; it exceeded that taken in 1912 and in 1911 put together, and represented a large increase over the boom year 1910; and it amounted to very nearly one-half of the total exports—the highest proportion yet recorded. The increase in value was from \$1,619,326 to \$2,211,340, or 36 per cent. The average price received for shipments to the United States was slightly lower than that for the preceding year (\$21.76 as against \$22.50), but continued higher than the average for any year prior to 1910, the highest recorded up to that time being \$18.70. This slight decline was offset by the higher price received for cigars taken by countries other than the United States, so that the average price of all exports, as noted above, increased.

It is interesting to note that the opening of the American market has enabled Philippine manufacturers to secure much better prices for their cigars shipped to foreign countries as well as to the United States, though the former were in no way directly affected by the tariff changes of 1909. It should be stated, however, that, though the resultant improvement in price has been marked and continuous, there is still a conviction that Philippine exporters are not securing the remuneration the quality of their product merits. Exports of cigars to the United States during the year under consideration approached much more nearly than ever before to the maximum number (150,000,000) entitled to free entry under the tariff of 1909, but still only slightly exceeded two-thirds of it. As in the case of sugar the maximum imposed on the free admission of cigars and tobacco is removed by the new tariff.

CIGARETTES AND UNMANUFACTURED TOBACCO

Cigarettes have never formed a very important article of export from the Philippines, more than nine-tenths of the relatively enormous annual production of more than 4,000,000,000 being regularly consumed within the Islands. The increase in shipments for 1913 over those for 1912 was,

however, so large in both quantity and value that the figures are of interest. Exports for 1912 amounted to 34,955,000 and for 1913 to 52,040,000, an advance of 49 per cent.; while the value increased at the same time from \$32,488 to \$57,582, or 77 per cent. The gain in shipments to the United States was even more marked, being nearly threefold in quantity and almost exactly threefold in value.

Exports of unmanufactured tobacco, which are almost wholly in the form of leaf, increased in quantity from 12,548 metric tons in 1912 to 13,309 tons in 1913 and in value from \$1,902,644 to \$2,039,726. Two-thirds of the shipments went to Spain, with considerable quantities to Austria, France, Hongkong, and Belgium. The United States has never taken more than a small fraction of this item of Philippine exports, and its purchases were only slightly stimulated by the establishment of free trade. The year just closed showed large relative increases, though the actual quantities and values were trifling.

MINOR ARTICLES OF EXPORT

Exports of commodities other than these great staples account for so small a proportion of the total as to demand comparatively little comment; yet there are several items which showed either considerable relative increases during the year under consideration or revealed commercial tendencies of interest from other points of view. Coconut oil has already been referred to. Exports of kopok (the so-called tree cotton which is in such increasing demand for mattresses, cushions, and life preservers) had fallen from 98,000 kilos (216,053 pounds) in 1911 to 31,000 kilos (68,343 pounds) in 1912, but advanced in 1913 to 111,000 kilos (244,713 pounds). The Philippine Bureau of Agriculture is endeavoring to encourage and assist the systematic cultivation of this novel and promising product.

Exports of abaca waste, which appeared at one time to be of great probable value for paper making, have declined steadily for two years. Exports of native cloths, which showed large increases in 1912, fell off greatly. Shipments of cordage, on the other hand—this being one of the few branches of manufacture for which the Philippines possess a considerable advantage (in the form of an abundant supply of raw material of superior quality)—reached a relatively high figure, in excess of that both for 1911 and for 1912. Exports of embroideries, shown for the first time, were valued at \$195,555.

Exports of knotted abaca, the preparation of which is an increasingly important cottage industry for the peasant population of certain Provinces, declined slightly from 1912, though still far above those for 1911. Italy and Switzerland are the principal countries of destination, the knotted fiber being there worked up into hat braid. Japan has a large production of the braid, but does not import the abaca already knotted from the island, preferring to perform that process locally, using selected grades of raw abaca, for which Japanese manufacturers paid during 1913 a higher average price than any other country. Recent advices are to the effect



Cultivating Tobacco, Ilagan, Isabela Province. Note the Filipino carabao plows, and the woman hand-weeding about the plants. Some of the best tobacco in the world is raised in the Cagayan Valley about here.



Copra, ready for shipping, Magdalena, Laguna Province. Bags of medium grade copra dried in steam-pipe hot-air oven. Only a few dryers of this modern type are in evidence thus far in the P. I. Value of this copra is about P.13 to P.15 per picul.

that the market for abaca braid (often called Tagal braid) is in a way to be glutted, and it is impossible to predict with certainty the future of this item of export.

HAT MANUFACTURES

Exports of hats during 1913 fell off in number by one-half, although the value was reduced only 8 per cent. This is obviously the result of a decrease in the relatively strong call for the cheaper grades, which



Copra Drying. Kiln, or Tapanan, Magdalena, Laguna Province. The common Filipino method. The smoke necessarily injures the quality of the "meat." Coconut husks and shells used for fuel

became very marked two or three years ago. The hat trade has continually fluctuated since it first became of importance, and it seems impossible to predict its immediate future with accuracy. The manufacture of hats, however, increases in importance as a cottage industry.

The Philippines have derived little advantage from the large demand recently stimulated by some turn of the wheel of fashion for hats of the abaca or Tagal braid mentioned above; for, though the islands have a monopoly of the raw material, Japan has been enabled, by virtue of lower wages, to work up the imported Philippine product and land it, duty paid, in the United States at a price that precludes competition.

MAGUEY, TIMBER, AND RAW TROPICAL PRODUCTS—GOLD MINING

Exports of maguey increased from \$320,791 in 1912 to \$704,394 in 1913, more than half of this going to the United States. Exports of timber continued unimportant, though showing a slight increase over 1912. Shipments of lumber, on the other hand, which should when the valuable forests of the islands have been developed to something like the full extent of their productivity, form a very important item, showed a gratifying increase from \$63,455 to \$214,814, or 238 per cent. More than half of the total went to the United States. Nearly one-half of it was represented by the native timber known as tanguile, a moderately hard and heavy wood of fair durability, useful for general construction, paneling, and furniture.

Exports of certain agricultural products, for the growth of which the Philippines are eminently adapted by nature, such as cacao and a large variety of fruits, remain negligible. In addition to all these there are regularly exported from the Philippines varying quantities of a number of raw tropical products, mostly from the sea or the jungle, which are not mentioned separately, as the unsystematic nature of the methods by which they are collected—in most cases by the casual labor of the uncivilized tribes—causes their quantity and quality to fluctuate greatly. Such are pearls, pearl shell, certain vegetable oils, gums and resins, beeswax, bêche-de-mer, gutta-percha, sapan wood, and rattan. Some of these, at least, are probably capable of systematic exploitation at a profit by the use of more intelligent methods and the application of a little capital.

Now that the period of experimentation in utilizing the gold resources of the islands appears to be over and several plants are producing extensively, the exports of gold bullion should be mentioned, here, although they are not included in the total exports as given at the beginning of this report. Regular shipments commenced in 1912, and amounted during that year to \$77,849; during 1913 they reached \$729,503; and all indications are for a further increase during the present fiscal year (1914).

CHANNELS OF TRADE—AMERICAN PRIMACY

In dealing with the principal items of export and import something has in each case been said as to the countries which appear most prominently as sources of supply or as destinations, and especially as to the relative position in this regard of the United States. In the way of discussion of the general subject of channels of trade, therefore, no more

is necessary than to comment upon a few salient points by way of summary.

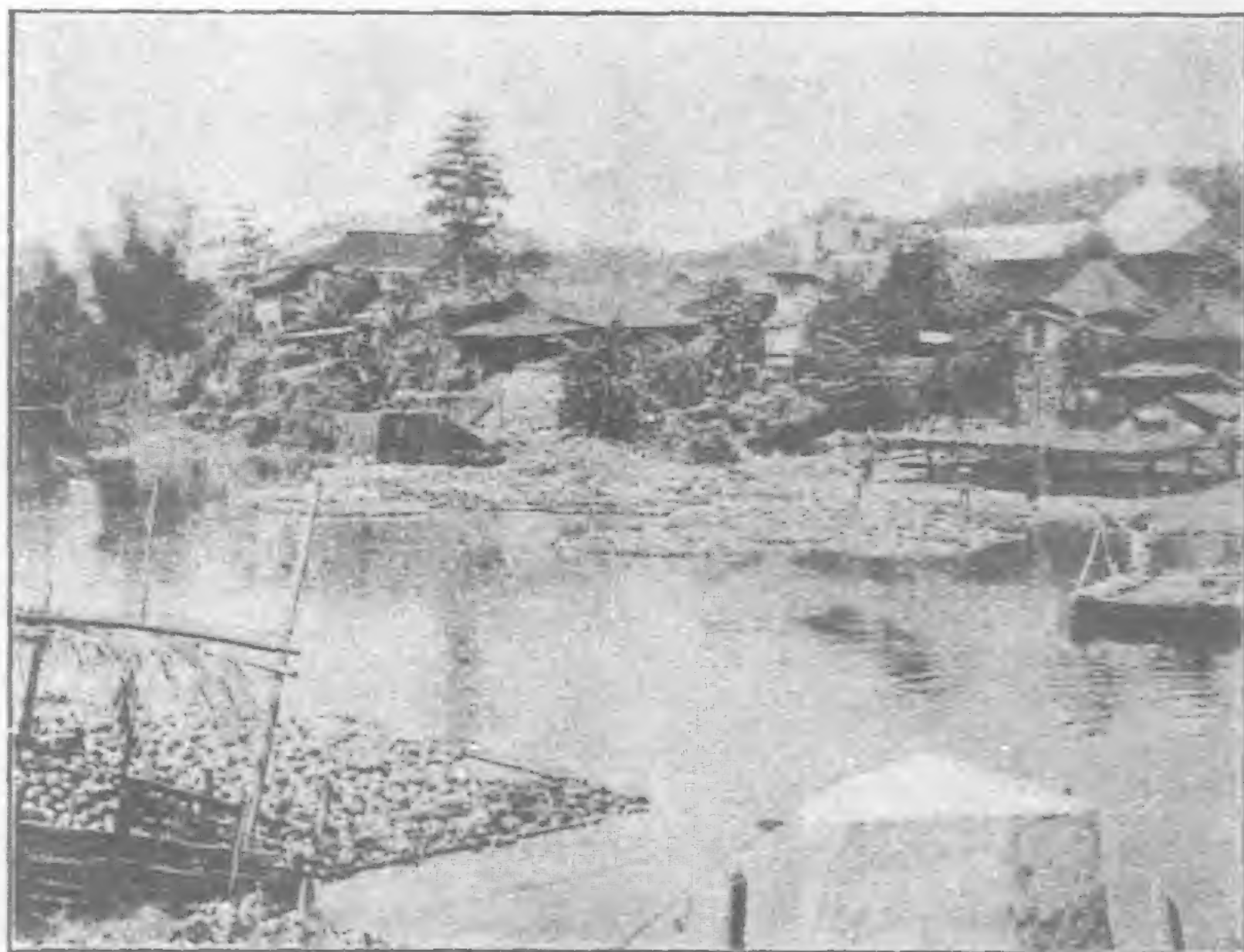
The United States continues to maintain the primacy in Philippine trade, both as purveyor and customer, which was gained in 1910 as the result of the tariff legislation of the preceding year. During 1913 the United States took exports valued at \$19,970,642, or 37.2 per cent. of the total, as against \$21,619,686 in 1912; and supplied imports worth \$25,646,875, or 45.5 per cent. of the total, as against \$20,791,433 in 1912. Exports to and imports from the United States for 1913 amounted to \$45,617,517, or 41.5 per cent. of the total trade of the islands. This last percentage is much greater than that for any year prior to 1910, and also greater than that for that year (38.5 per cent.) or for 1912 (40.4 per cent.), but smaller than that for 1911 (43.1 per cent.). The percentage of total imports supplied by the United States is the highest yet recorded, the percentages for the three years preceding being 29.1, 39.8, and 38.1, respectively, while for no year prior to 1910 did it reach 20 per cent. In fact, the increase in imports from the United States during 1913 (\$4,855,442) was greater than the total increase in imports from all countries (\$1,777,533). Besides the commodities already mentioned, such as cotton goods, flour, iron and steel products, and leather goods, the principal classes of merchandise which contributed to this great increase in import values from the United States were automobiles, fish and fish products, and silk goods.

In exports to the United States during the year under consideration there was an absolute decrease of 7.6 per cent., and the percentage which these bear to the total exports, as given above, was less than for any year since 1909 and even for one or two years previous thereto. This falling off was due to the decreased purchases of sugar and copra already discussed; and what was said in that connection applies also to the question of remedying the situation now under discussion. It depends, of course, in part on the recovery of those industries from the effects of storm and drought, in part on the reappearance of a demand in the United States for Philippine copra at probably increasing prices, and in part on the adoption of improved methods of treating the sugar crop.

POSITION OF OTHER COUNTRIES

The United Kingdom occupied during 1913 second place as regards total trade and exports and third (after French Indo-China, whence come the heaviest rice shipments) as regards imports; in all three cases with France immediately following. This has been, since the establishment of free trade with the United States, the normal situation, although in 1910 and 1912 France, being a heavy purchaser of Philippine copra, stood above the United Kingdom on the export list. During 1913, however, there was an increase in the total trade with the United Kingdom (mainly in exports as a result of the increased value of abaca shipments), while the total trade with France, principally owing to the shortage in the copra supply, declined. French Indo-China continued to stand fourth in regard to total trade, despite the decrease in importations of rice; that colony's share in the Philippine export trade is negligible.

Aside from these countries, a study of Philippine trade figures for several years has demonstrated that changes in the relative standing of Japan, Germany, Spain, China and Hongkong, Australasia, the British East Indies, and such others as from time to time make a noticeable figure in the returns, are so frequent and so seldom traceable to any definite cause as to



River at Pagsanjan, Laguna Province, showing coconut raft. This town is a famous center for copra and coconut oil manufacture. The unhusked nuts are floated down the river in rafts.

make it unprofitable to comment on them at length. During the year under discussion the British East Indies lost relatively as the result of diminished rice purchases from Singapore and Rangoon. Japan, though losing heavily to the United States in the cotton-goods trade, rose in the list as the result of taking large shipments of high-grade abaca and of sugar; and China and Hongkong also assumed higher places as the result of increased purchases of the latter article.

GENERAL SUMMARY

The course of Philippine trade for the fiscal year 1913 may therefore be summed up as follows: The total volume showed a moderate increase, somewhat smaller than estimates based on the figures for the first few months, but still satisfactory; this increase was about equal in imports and exports, excluding from the former the item of rice, purchases of which, owing to an abundant local harvest, largely declined. Aside from rice there were satisfactory increases in the importations of most classes of merchandise. In cotton goods there was a large advance, more than absorbed by the United States, which now supplies nearly 60 per cent. of this class of Philippine imports. There was also a considerable gain in the imports of iron and steel products, mainly in machinery, in which the United States also shared largely.

Of the great staple exports, abaca (Manila hemp) declined in quantity, but advanced in value, owing to a sudden and possibly only temporary rise in price. Copra and sugar decreased in both quantity and value, and especially as regards shipments to the United States; in the former the main cause was a shortage in supply due to typhoons and drought, and in the latter, the poor quality of the product. Tobacco products, especially cigars, showed very material increases. Minor items of export fluctuated a great deal, the most satisfactory feature being the appearance of a considerable export of coconut oil. Exports of gold bullion from Philippine mines, not included in the total figure as usually given, increased heavily.

The United States retained its primacy among countries having shares in Philippine trade, as regards both exports and imports. The United States took a slightly smaller value of exports than during the preceding year, but made a heavy gain in its share of the import trade, both absolutely and relatively. As a result its share of the total trade increased materially. There were no changes of importance in the standing of other countries.

[All the photographs used to illustrate this article are by the Bureau of Agriculture, Philippine Islands.]



One-year-old Coconut, Patalon Estate, Zamboanga, Mindanao. This plant has, of course, been properly treated, i.e., kept free from grass and weeds, and well tilled. (About three times the ordinary growth.)

soon be controlled by either the Mitsui Bussan or the Mitsu Bishi Kaisha, as all the important mines in Kiushu have passed into the hands of one or other of these companies by purchase or through contracts.

There is a growing tendency to favor American machinery in the Kiushu coal mines. Companies desiring a share of this business may be able to obtain profitable orders by personal representation there. In such a badly crowded, highly competitive field it is useless for any firm to expect consideration for goods not known to the buyer, and not properly brought to his attention.

NIPPON YUSEN KAISHA TO CHANGE COALING BASE

These discoveries of coal in the vicinity of Nagasaki lend additional interest to the Nippon Yusen Kaisha's announcement of its intention to abolish its coaling station at Moji and to establish a base for its European, Indian, and Australian lines at Nagasaki. Moji's position in Shimonoseki Straits at the entrance to the Inland Sea makes it a more convenient port of call than Nagasaki for vessels bound to China, the East Indies, and Europe; and, too, its proximity to the great Chikuhō coal fields is of great benefit to Moji, the cost of transporting this coal to Nagasaki making it prohibitively high in this port.

But these advantages of Moji as a coaling port have been counter-balanced by its unsuitability as an anchorage, due to the swift current through Shimonoseki Straits, which has caused numerous collisions of vessels. It was in order to avoid all danger of such accident to its new boats that the Nippon Yusen Kaisha decided to remove its coaling base from Moji, and it has been considering the change to Nagasaki for some time, but was deterred by the price of coal here. With the working of the deposits at Sasebo and Iojima, Nagasaki will have available an abundant supply of good fuel and should soon be able to furnish coal as cheaply as Moji. Transportation to Nagasaki from Sasebo and Iojima will be by boat, whereas the coal supplied to Moji is all carried to that port by rail—a more expensive method of transportation.

RECENT DISCOVERIES OF COAL IN JAPAN

In reference to recent discoveries of coal in Japan the American Vice-Consul at Nagasaki, Mr. Harold C. Huggins writes:—Recent surveys made at Iojima (an island in Nagasaki Harbor) have confirmed the opinion of experts that a valuable deposit of coal exists there. Its quality is said to be the same as that of the Takashima colliery coal, and in quantity it is thought to equal the Nakanoshima field near Nagasaki. If this deposit proves as valuable as it is supposed to be, Nagasaki will be most fortunate in having an abundant supply of fine coal near the entrance of its harbor, and local business circles anticipate a revival of prosperity as the result of the opening of this mine.

The Takashima coal mine, referred to above, is the generic name of the two collieries located at Takashima-mura and Hashima, Takahama-mura, both in the Province of Hizen, Nagasaki Prefecture, and owned by the Mitsu Bishi Kaisha, and although this company has been working continuously day and night for the last 32 years, the area mined so far is hardly one-third of the total area of the remaining field. Takashima, Futagoshima, Nakanoshima, and Hashima are the four principal islands of the coal field.

The coal deposits of the Mitsu Bishi Co. to be worked in the future are those of the Nakanoshima field and the field lying between Nakanoshima and Takashima.

PROMISING MINE NEAR SASEBO

A very promising coal mine has been discovered near Sasebo Naval Station, Sasebo, Hino-mura, Nagasaki Prefecture. It is estimated by those who have examined the outcroppings and seams that the workable area exceeds 4,280 acres. The mine abuts on the seashore, and outcroppings of the seams may be seen in the sand. Work will shortly be begun on this mine, and it is expected that this district (Sasebo) will, as a consequence, become very prosperous. The quality of the coal is said to be equal to the famous Miike coal.

As Sasebo has no direct rail connection with Moji or with Nagasaki, and is, by water, nearer to Nagasaki than to Moji, it will be cheaper and more convenient to ship this coal to Nagasaki for export than it will be to send it to Moji, the present great coaling port of Kiushu. This fact, in connection with the discovery of workable deposits of coal on Iojima, will give a great impetus to the already well-started improvement of the commercial condition of Nagasaki. It is quite possible that this mine will

MINING RIGHTS IN MONGOLIA

A Harbin correspondent writes:—Near Manchuria Station is a town named Lupingfu, itself in Barga territory and not far from this town is a coal mine which, prior to Outer Mongolia's declaration of Independence, was worked by Chinese. These cleared out when fighting began, leaving in charge a handful of watchmen to look after the plant which included a considerable amount of machinery. As is usual all over China, movable fixtures were stolen and even the timber in the shafts was taken away for use as firewood. An Italian who knew this mine previously obtained a concession from the Mongolian authorities to work it on his own account. When he arrived with his credentials and took charge he found the mine full of water and only the heavy machinery left intact. He at once set to work in an energetic manner to restore order, is producing coal of a marketable quality which is readily saleable and has proved that the mine is of considerable value. Now that the mine promises to become a paying concern, rumours are afloat that objections will be raised against the Italian's right to work it. Provided that the Italian's papers are in order and the Mongolians owned the land on which the mine is situated, these objections cannot be treated seriously by the Mongols.

It is just this sort of thing that makes it impossible to embark on any form of mining enterprise, and the sooner the Chinese and Mongolian authorities realize this and do away with the uncertainty at present attaching to mining rights, the better.

RUSSIAN WIRELESS SERVICE IN SIBERIA

The Russian Government has under consideration the establishment of seventeen wireless telegraph stations. The first thing to be done is to found a central station at Nikolaievsk so as to communicate with a branch station at Okhotsk and two other places in order that communications between the Behring Straits and European Russia may be raised to a more efficient and reliable working basis. Branch stations will be opened at the mouths of four rivers in Siberia emptying themselves into the Arctic Ocean.

MOTOR CARS IN NORTH MANCHURIA

Motor car traffic between Tsitsihar (in Heilungkiang) and Taheiho, 330 miles distant, has been opened with six motor cars which are at present employed chiefly for carrying passengers. The fares are 27 roubles, 16½ roubles, and 9 roubles for 1st, 2nd, and 3rd classes respectively. This enterprise is financed on joint government and private capital.

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CHINA'S NEW MINING REGULATIONS

We are now enabled to publish the new regulations which the Chinese Government has devised and promulgated. They are a distinct advance upon anything else of the kind that have been adopted in the past, and afford tangible evidence that the Government is desirous of doing more for the development of the most important of her natural resources than has ever been done by any previous régime. While there are foreign critics who express apprehension lest the regulations will still be used in an obstructive sense so far as the introduction of foreign capital is concerned, the officials directly connected with the administration hold a different view and give expression to more reassuring sentiments. They are in fact enthusiastic that the regulations will prove fully adequate in their scope to permit the untrammelled entry of foreign capital and will at the same time accord the fullest meed of protection to investors. The one thing that must be acknowledged is that the regulations are a tremendous step forward. In the old days—not so very old as measured by time—the mining industry was throttled by mismanagement and over-taxation by the officials, and was obstructed by the people, whose superstition led them to believe that the boring of a hole in the crust of the earth presaged the release of a disgruntled dragon which would wreak more damage in the immediate locality than the opening of half a dozen Pandora's boxes. The "industrial delegates" who used to be despatched to the provinces specially to take charge of mining affairs knew nothing of their work, and the Taotais to whom the task was eventually passed on knew less. There was no possibility of development under such conditions, and scarcely anyone endeavored to pursue the establishment of a mining enterprise to the end. The history of several concessions granted to foreigners are too well known to need repetition. Work was prevented by people and officials—and China repurchased the concessions at high prices, and then did nothing with them. That day seems to have passed so far as the Central Government is concerned, but whether the attitude of the people has changed can only be tested by an effort to carry on development work. In order adequately to administer the mining country eight districts have been created with responsible heads. Attached to each will be technical experts, Chinese and foreign, who will be chosen on account of special qualifications and whose duties will be connected entirely with the prospecting, location, and development of mineral deposits.

A change, too, has been made in connection with the acquirement of mineral lands. Under the old régime the owner of the surface land was the proprietor of the ores beneath, and every manner of extortion was practised to obtain money from those desirous of mining. Large sums have been squandered by mining concerns in acquiring the permission of the landowners to work, with the result that before proper development could be undertaken capital has petered out and enterprises have been abandoned solely for want of unlimited funds. Mineral deposits are now, however, declared as belonging to the State, and the landowner is unable arbitrarily to demand payment in any shape or form, except for land which might be required for buildings, and even then he will be compelled by the Government to accept the market rate of the day, provision being made for an appeal by the mining applicant to the head of the "Bureau of Mining Supervision" of the district in case of suspected extortion. This gives distinct encouragement to prospectors who hitherto have located deposits, for it is now possible for them to secure a right to mine irrespective of any claims the landholder may make, and providing that no other mining claim can be sustained. The area granted for mining has also been somewhat increased. In the old régime the largest area was 960 mow (a mow being 7,260 English square feet) but that has now been increased to 10 square li (a li being approximately one-third of a mile), in the case of coal mines, and to five square li for other mines. Any mining company having legitimate grounds for extension may, however, apply to the Minister of Commerce and Industry for such a right, and he is empowered to grant it if he thinks advisable.

A revision has been also made of the taxes which in the old days were imposed and strangled the industry. Gold, silver, and precious stones could not be worked under a tax to the Government of ten per cent., while five per cent. on the output of other

minerals had to be paid. In addition to that, too, half of the profits of the mines had to be divided equally between the Government and the owner of the land, the other half going to those who had developed the property. In view of this it is not to be wondered at that mining enterprises never flourished in China, and it is gratifying to note that the Government has now seen the wisdom of making the tax a nominal one of from one to one and a half per cent. of the product of the mines.

The vital point so far as the foreigner is concerned is that of financial participation, and in this respect there has been a more liberal view taken of the requirements of foreign capital. In the old days foreign capital was restricted to forty per cent. of the total, and every effort was made to prevent foreign direction of mining properties. The participation has now been placed at fifty per cent., but we have it on the authority of both the Minister of Commerce and Industry, and the head of the Mining Department, that foreigners may provide whatever portion of the capital is necessary if the Chinese fail to subscribe their moiety. Further, the question of control will rest with the mining company entirely, and there will be no restriction with regard to the purchase of shares on the stock market by foreigners. If this procedure is carried out in spirit there is much more certainty of foreign investment than heretofore, though large capitalists will hunger for concessions which will permit them to handle big schemes either with participation of Chinese capital or without.

On March 11 the important announcement was made that Professor Anderson, Director-General of Mining in Sweden, had been appointed Mining Adviser to China. This appointment is held in some quarters to be a guarantee that the Mining Regulations will be administered in a liberal spirit, as it is understood that Professor Anderson only consented to accept the appointment on the understanding that the old policy of obstruction to mining development should be abandoned.

"THE RICHEST COUNTRY IN THE WORLD"

Visitors to the Philippines with singular unanimity remark that the country has wonderful possibilities. The ordinary globe-trotter, perhaps, pays more attention to scenic beauty and to the picturesque than to the commercial possibilities of the countries he visits, but the Philippines of late years have attracted a number of men who were well fitted by training and natural instinct to determine, even after a short stay, whether the Archipelago showed much prospect of expansion. Mr. William Kline, the well-known Chicago millionaire, falls within the latter category. Interviewed recently at Manila after a stay of a few weeks in the Islands, he declared that the Archipelago was "the richest country in the world." He had no patience with those who talk pessimistically of the future of the Philippines. In his opinion the merchants of all nationalities should "get together and boost the country." Also, he counselled, they should drop politics and give greater attention to attracting tourists.

It is at all times useful to get the candid and unprejudiced opinions of those whose views are worthy of respect. The successful business man upon visiting a new country looks around him with an understanding eye; he considers geographical position, political conditions, natural resources, climate and all the elements which combine to render the prospects favorable or unfavorable. In the case of the Philippines it is, as we have said, remarkable that the men best qualified to judge are unanimous in declaring that an ever-growing prosperity should be the lot of the country. Mr. Kline's advice to drop politics is worthy of consideration. Politics necessarily play a great part in the life of a country, but it is possible to over-estimate the importance of that part, and to allow apprehensions based on political beliefs to interfere unduly and disastrously with normal progress. While it would be untrue to say that politics is the fly on the wheel, politics is certainly not the wheel, and the mistaken belief that it is is responsible for fears that are not well founded.

A study of the valuable article by Mr. John R. Arnold published elsewhere, will show the wonderful progress being made in the Philippines. Some of the figures quoted are veritably astounding. For example the value of the abaca

(Manila hemp) exported rose to the extraordinary total of \$23,044,744, an increase in comparison with the previous year of nearly \$7,000,000. This great increase, it is true, was due to the rise in price and not to increased production, but there seems no reason to suppose that the price will sink very far below the present level. On the other hand the production is certain to increase as the decrease in 1913 was entirely due to the unfavorable climatic conditions of the previous year. The tobacco industry also showed gratifying progress, the value of cigars exported alone showing an increase of 26 per cent. Natural conditions accounted for a falling off in copra and sugar, and this need occasion no alarm. The imports only increased in value by about $3\frac{1}{4}$ per cent. and the exports by over $6\frac{2}{3}$ per cent. That the increase in the value of imports was so small is a matter for congratulation, as it is mainly accounted for by the large drop in the importation of rice. The attainment of the ideal position when the Philippines will supply all its needs in foodstuffs will obviously be to the advantage of the country as a whole, though it must naturally adversely affect in appearance the trade statistics.

We feel sure that the optimists are right, and that Mr. Kline's advice is well worth following. The development of a belief that the Philippines must progress whatever happens in the political world would help to hasten that progress. Nothing was ever yet accomplished by insistence upon looking only on the gloomy side of things. The profitable course is to be optimistic even in adverse circumstances, and to be pessimistic when it is obvious that circumstances are favorable is the height of unwisdom.

SHANGHAI'S MUNICIPAL ELECTRICITY DEPARTMENT

On March 20 the Ratepayers of Shanghai, amid great enthusiasm, rejected a proposal to hand the Municipal Electricity Department over to a private company. The proposal followed the presentation of a report by a Special Committee, which recommended that the Electricity Department should be handed over to a company in which the Municipal Council should retain a sufficient number of shares to ensure control of the management by the Council. At least one half of the shares should be held by the Council. It was further recommended that stipulations should be made in regard to the tariff of charges, including that for public lighting, and to ensure that no increase in rates should be made without the Council's sanction. A capital of Tls. 6,000,000 was suggested. The reason given by the Special Committee for recommending the handing over of the Department was, briefly, that the necessary extensive borrowings for the Department tended to fetter the issue of Municipal loans for general purposes. In a reference to the Special Committee's report in the *Municipal Gazette* it was said that one object in view in appointing the Committee was the desire, wherever expedient, to divest the Council with its limited membership of nine of some part of its increasing responsibilities.

To the report were appended other reports by the Municipal Electrical Engineer and the Municipal Treasurer. The former was strongly in favour of handing over the Department to a Company. The lack of elasticity in Municipal enterprises was cited. The Council at present only received from the Department the small sum of Tls. 26,000 per annum. Owing to its municipalisation the undertaking could not be run in such a way as to offer such facilities to the public as would induce it more generally to adopt electricity. The Council upon its holding of shares in the company would, on an 8 per cent. basis, receive Tls. 60,000 profit instead of Tls. 26,000. The Municipal Treasurer also supported the proposed transfer to a company on three grounds, (1) that a practical solution to the question of the redemption of Electricity loans—for which no provision had yet been made—would be provided, (2) that the Council would be relieved from the many details attendant on the management of a large and constantly expending industrial undertaking (3) that the finances of the Municipality would be greatly strengthened. The Treasurer pointed out that the loans already issued for Electricity purposes amount to Tls. 2,719,000. To provide for interest and repayment over a

period of thirty years would involve an annual charge of about Tls. 197,500. A dividend of eight per cent. on the Council's shares, say Tls. 3,500,000 would produce Tls. 280,000, which after deducting the Tls. 197,500 required for interest and redemption would give a balance of Tls. 82,500 for transfer to Municipal income. At the end of thirty years the income of the municipality would benefit to the extent of a clear Tls. 280,000 per annum.

The report of the Special Committee did not meet with the unanimous approval of the Council. In fact it soon became known that a majority of the Council were opposed to the transfer, and the Press and public seemed entirely averse to making the suggested change. The rejection of the proposal that the Electricity Department should cease to be a municipal enterprise, by an overwhelming majority of the Ratepayers, excited no surprise, but it was generally admitted that it was desirable to give more elasticity to the administration. Important extensions of the Riverside Power Station are contemplated, and the sum of Tls. 700,000 for additional plant was voted.

REPRESENTATION FOR BRITISH MANUFACTURERS, LTD.

An interesting and important development, and one which may be regarded as significant, is the establishment in China of Representation for British Manufacturers, Ltd. This Company was recently founded by nine well-known firms for the express object of establishing and maintaining staff representation in certain foreign countries for the sale of their manufactures. The founders were Sir William Arrol & Co., Ltd., Glasgow; John Brown & Co., Ltd., Sheffield; Cravens Limited, Darnall, Sheffield; Dorman, Long & Co., Ltd., Middlesborough; Thos. Firth & Sons, Ltd., Sheffield; R. W. Hawthorn, Leslie & Co., Ltd., Newcastle-on-Tyne; Hulse & Co., Ltd., Manchester; W. S. Laycock, Ltd., Millhouses, Sheffield and Simon Carves Coke Oven Co., Ltd., Manchester.

The East Asiatic Section of the Company is now being organised. There will be a head office at Peking and branch offices at Shanghai (which was opened in February), Hankow and Canton. Business in Eastern Siberia, Mongolia, Manchuria, Korea and the provinces of Chihli, Shansi, Shensi and Kansuh will be attended to by the Peking office, while the spheres of the other offices will be as follows:—Shanghai office: Shantung, Kiangsu, Anhui, Chekiang and Fukien; Hankow office: Honan, Hupeh, Kiangsi, Hunan, Kweichow and Szechuan; Canton office: Kwangtung, Kwangsi, Yunnan, Hongkong, Formosa and the Philippine Islands.

The Company is not a trading company; that is to say it does not exist to make profits for itself. Business will be negotiated for account of and in the names of the respective manufacturers. The Company desires to facilitate business with the existing commercial houses, whilst keeping the names and trademarks of the manufacturers who hold the shares, prominently before the users.

The organization in China is being carried out by Mr. W. Franklin Newman, General Manager, and the Assistant General Manager is Mr. S. W. B. McGregor, A.M. Inst. C.E., M.I. Mech. E.

VLADIVOSTOCK HARBOUR EXTENSION.

Engineer F. N. Gezekhus, the Assistant Harbourmaster of Vladivostock, is engaged in completing the details of the project for the extension of the commercial port and in making the necessary arrangements to let out the work on contract. He reports that the Ministry of Trade and Industry has already drafted the contract and that it will publish the advertisement for tenders after negotiations have been conducted with the city concerning the grant of the requisite lots of land along the shores of the harbour. It was expected that the result of the tenders would be made known about the end of March, or according to the New Style of reckoning, during the early part of April.

Independently of the foregoing, negotiations are being conducted with the War Department on the exchange of lots necessary for the extension of the port. The Imperial Duma has appropriated for this important work, under the Law of July 12th, 1913, about R. 6,750,000 (£675,000), which includes the sum of R. 300,000 (£30,000) for the construction of a floating dock. Work let out on contract will represent a value of something like R. 5,500,000 (£550,000). It has been decided to carry out the dredging operations under official supervision, and the Ministry has therefore ordered from Holland a complete dredging plant, which is due to arrive at Vladivostock, towards the end of 1914.

IRONWORKS IN SHANTUNG

A board meeting of the Shantung Railway Company recently considered a proposal for the establishment of iron works in the German Protectorate at an estimated capital outlay of m. 10,000,000. It was resolved to propose that for this purpose the share capital should be increased by m. 10,000,000 (to m. 70,000,000). It is intended that for the first three years a 5 per cent. dividend out of capital shall be paid on the amounts paid up.

SHIPBUILDING IN CHINA

A smaller aggregate tonnage was launched in 1913 at the Shanghai shipyards than in 1912, but the establishments continued fairly busy with the construction of river steamers, lighters, tugs, and small craft generally. The New Engineering Works are building a river steamer, two tugs, two motor barges and two steel lighters; while the Shanghai Dock Company have on hand a steam collier of 6,000 tons, a twin-screw river steamer, a salvage tug which is to have engines of 1,200 I.H.P., other two smaller tugs, and a passenger tender. The yards of course are all comparatively new, but they are extensive, and some of them do a great deal of drydocking and overhauling business which does not figure in statistics of tonnage launched. They were, indeed, started as repairing and overhauling establishments, but it was found that new construction could be economically combined with this. The firms still, however, specialise to a large extent in their original line of work.

	1913.			1912.		
	Ves.	Tons.	I.H.P.	Tons.	I.H.P.	
Shanghai Dock Co. ..	12	4,025	350	4,023	2,700	
Kiangnan Works ..	21	3,239	1,840	6,164	3,000	
New Eng. Works ..	20	1,093	40	2,870	1,660	
The China Eng. Co. ..	7	130	—	—	—	
	60	8,487	2,230	13,057	8,260	

The Shanghai Dock and Engineering Company.

Vessel and Type	Registry	Tons	I.H.P.
Slavanka-Tug	Vladivostock	100	350
Laestrygon-Pontoon	Shanghai	3,000	—
9 vessels-Lighters	"	675	—
1 vessel-Barge	"	250	—
Total-12 vessels of 4,025 tons and engines of 350 I.H.P.			

Kiangnan Dock and Engineering Co. Shanghai.

Vessel and Type	Registry	Tons	I.H.P.
2 vessels-Steamers	Tientsin	543	1,350
6 vessels-Steamers	Shanghai	150	490
7 vessels-Motors	"	218	—
3 vessels-Lightships	"	90	—
3 vessels-Pontoons	"	358	—
1 vessel-Hulk	"	1,880	—
Total-21 vessels of 3,239 tons and engines of 1,840 I.H.P.			

The New Engineering Works, Shanghai.

Vessel and Type	Registry	Tons	I.H.P.
Chi Yue-Steam launch	Shanghai	15	40
Soo Hang-Motor Barge	"	30	—
4 vessels-Motor launches	"	23	—
2 vessels-Motor tugs	Vladivostock	25	—
12 vessels-Barges, lighters, etc. ..	Shanghai	1,000	—
Total-20 vessels of 1,093 tons and engines of 40 I.H.P.			

The China General Engineering Co., Shanghai.

Vessel and Type	Registry	Tons	I.H.P.
7 vessels-Motors	Not stated	130	—

NEW RAILWAY STATION AT CHANGCHUN

The mild winter greatly accelerated the progress of the construction of the new Railway Station at Changchun, for which about Y. 300,000 is laid out. The work was quite completed by the end of February, and the building is to be taken over shortly by the South Manchuria Railway Company from the contractor. The interior furnishing, installation of electric wiring, etc., will be finished during April, and the new premises will be ready for occupancy at the end of April. The new building is said to surpass in dimensions and architectural elegance even the Mukden Station Building, part of which is used as the Yamato Hotel.

THE CONTROL OF INNER MONGOLIA

PROJECTED RAILWAYS NORTH OF PEKING

The lessons on the value of railway communication which the Chinese Government have learned in the troubles which have beset the country during the past few years have been instrumental in firing the authorities to endeavor to bind the region known as Inner Mongolia closer to China Proper by the establishment of a series of lines connecting the newly opened "ports" with Peking. The miniature frontier war which developed between the Mongolian and Chinese forces as a result of the unrest in Mongolia demonstrated to the officials in Peking the slender character of the hold they had upon the rich regions lying outside the boundaries of the northern provinces, and prompted them to seek some other means than armed force to win the allegiance of the inhabitants, and secure a better footing to resist the invasion of possible enemies from across the Gobi Desert.

Frankly put, China feared the Mongols, but feared more the friends behind them, and she followed wise advice when she made the anticipatory move of opening certain towns in Inner Mongolia to foreign trade, thus giving other nationals a footing in tracts erstwhile forbidden from the China side but which were, from the Mongolian side, rendered a happy hunting ground for any Russian traders who might feel disposed to take advantage of it.

That few did do so, has little bearing on the question. That the privilege existed, and that the jurisdiction of China over the region was seriously menaced, are facts which are common knowledge and which have compelled the Chinese Government seriously to consider the situation from its several view points. What is appreciated now is that lack of communication is the greatest handicap to any successful reassertion of authority on the disturbed Mongolia tableland, and to overcome that there is considerable thought being devoted to the initiation of a railway scheme to provide facilities which will bring the rule of Peking into respect among the settlers and the nomads who seem to have lost all idea of the fact that Peking pronouncements are to be regarded as anything more impressive than exhibitions of official aptitude with the brush or as purely mural decorations.

The opening of the towns of Kweihwating, Kalgan, Dolonor, Chih-feng, and Taonanfu, in Inner Mongolia, was designed to give foreign traders certain commercial claims in the event of some untoward development in Mongolia, and the connection of these towns by rail will not only enhance trading possibilities, but will achieve the end which Peking has in view. The scheme which is talked of and which the Government hope will soon be developed embraces a wide area of country, as will be seen from the accompanying map. It is proposed to construct a line from Peking to Jehol and Chih-feng first; to follow that with a line from Chinchow, on the Peking-Mukden railway, to Chaoyang, and later to connect Chaoyang with Chih-feng; then to build a railway from Kalgan to Dolonor, and a connecting link with Chih-feng. Such a programme will bring an important section of the country under the immediate domination of the Capital, and will immensely commercially benefit a wide expanse. Practically the whole of the region tapped is rich from a pastoral point of view, and much of it is exceptionally good for grain production. Avenues will be opened for large settlements, and the overpopulated areas in China Proper might easily be relieved of heavy surpluses to the benefit of Inner Mongolia. The Government have no misgivings about setting about the building of all of these lines at once, but financial stringency dictates a gradual programme of construction.

In all there would be about 800 miles of railway to be built to consummate the scheme, the approximate mileage being made up as follows:—

Peking to Jehol.....	140	miles
Jehol to Chih-feng.....	130	"
Chinchow to Chih-feng.....	180	"
Kalgan to Dolonor.....	150	"
Dolonor to Chih-feng.....	200	"
Total	800	miles

The connection with Taonanfu is not being considered in this scheme, the section between that city and Jehol having been promised to the Japanese to finance and construct. That is likely to be deferred for some time, for the Government feels that that particular line would contribute more to the strategic and commercial plans of Japan than it would to those of China. For that reason China intends to devote herself to securing the regions about her northern frontier, and as a beginning proposes to build the line northward from Peking for strategic reasons, and from Chinchow to Chaoyang for commercial ones. Chaoyang is the centre of a wealthy mineral area and the development of the latent riches is bound to take place immediately the question of transportation is solved. This line will be constructed as a branch of the Peking-Mukden railway, and probably

from money loaned by the British and Chinese Corporation if sufficient earnings are not obtainable from the Peking-Mukden railway. The line from Peking to Jehol and Chih-feng will have to be built from loan money, but whether, it will be entirely British or not remains to be seen. Diplomatic strings have to be pulled to obtain a modification of the Scott-Muraviev agreement which precludes Great Britain from aiding any of her nationals in seeking railway concessions outside the Great Wall, and whether Russia will consent to such a modification is a moot point. The importance of such a system of railways is not lost upon the



The main route from Kalgan to Mongolia—Looking towards Kalgan

Mongols of Urga, or the Russians, and both have peculiar interests of a vital nature to preserve. The proposed lines are not calculated to assist either in that direction, so it is reasonable to suppose that both will use all possible efforts to throw obstructions in the way of their materialisation. The professions of friendship for China which Russia recently felt constrained to make when she advocated the withdrawal of foreign garrisons from North China might be, of course, strikingly signalled by a helping hand being extended now that China is wishful of establishing herself so that she can rule the turbulent tribesmen who have cost her so dearly in recent months. If it is Russia will do much to remove the impression that has gained ground that she is the motive power behind the machinations of the Mongols, but if she does not she will merely strengthen the arguments that are adduced to prove that she has deep-laid plans for territorial aggrandisement at the expense of China.

Already China has evinced a desire to have the railways alluded to built by having had both the Chinchow-Chaoyang, and Peking-Jehol lines surveyed, Mr. D. P. Ricketts, Engineer-in-chief and General Manager of the Peking-Mukden railway, having conducted the work. The estimated cost of the Peking-Jehol line is set down at approximately £1,169,900, while that from Chinchow to Chaoyang is given at about \$4,225,000, or, roughly, £422,500.

It is, of course, declared that a line to Jehol alone will not pay; but if a continuation is made to the market town of Chih-feng it is safe to assume that there will be more than sufficient traffic developed to cover working expenses and capital charges in very quick time, for that

centre taps a large and rich region which already exports and imports large quantities of products, despite the difficulties of transportation.

The territory traversed by these projected lines is in the mountainous belt through which the sweeping plains for Chihli give way almost abruptly to the great Mongolian tableland. The ranges generally run in the direction of north-east and south-west, and between them are rich valleys which are devoted to agriculture. Some general idea of the country, as well as the chief towns that will be touched, is given in the following descriptions of the proposed routes:—

From Peking to Jehol and Chih-feng

About 140 miles north-eastwards of Peking lies Jehol, or Chengtehfu, the old country-seat of China's monarchs, the spot to which Lord Macartney, in September, 1793, travelled to see the Emperor on behalf of the King of Great Britain. The chronicler of that Embassy stated that "it was probably for the first time that an English post-chaise rolled upon the road to Tartary," for Lord Macartney brought out his own carriage and travelled in it most of the way to Jehol, though some of the passes were so steep that he had to transfer himself to a palanquin while coolies hauled the post-chaise over the steep and rough way. The post-chaise, with its high-swung body, its springs, and general appearance of fragility, was a tremendous source of interest to the natives, and while perhaps no other vehicle of the kind has traversed the same route in the 121 years that have since elapsed, the descendants of those who were amazed at the strange contrivance of the "outer barbarian" have in store for them a greater surprise when the locomotive and its train of cars rushes over country which has not been accustomed to vehicles speedier than the springless Peking cart, a mule litter, or a palanquin, and which has mostly been famed for the spectacular processions accompanying the Imperial Court.

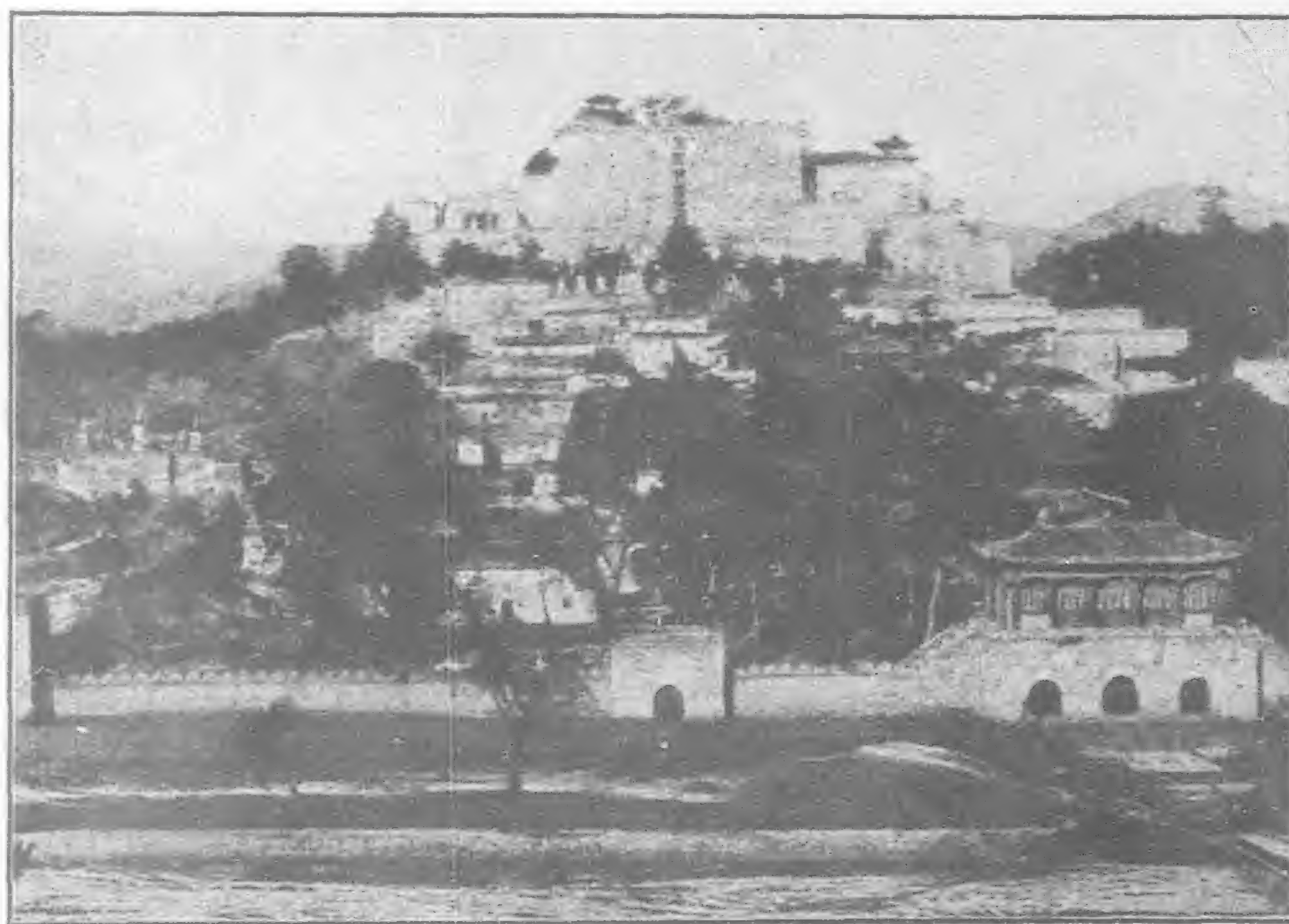
The road to Tartary is, too, much the same as it was when Lord Macartney traversed it. The same highly cultivated plains and sprinkling of grave yards just outside of Peking, with similar willows, poplars, and mulberry trees marking the country, are to be seen, and twenty odd miles away the same foothills up which the Embassy toiled have still to be surmounted by the traveller, with steeper passes rising beyond and creating scenery "pleasing and romantic," but perhaps not so populated as they were then with "wild goats and wild horses which were seen scampering along the hills," though men can no doubt still be found "ascending precipices—or virtual precipices—to find spots fit for cultivation." And the same Great Wall which so impressed the Embassy still crawls over the crests of ranging hills, then known as the Tartarian mountains, "descending into the deepest valleys, crossing upon arches over rivers, doubled and trebled in many parts to take in important passes, and interspersed with towers or massy bastions at almost every hundred yards, as far as the sight could reach, presenting to the mind an undertaking of stupendous magnitude." The travellers then, as now, approach the wall "by a steep ascent until they come to what is called the southern gate—which is thrown across the road which it passes over the summit of a range of hills in most parts inaccessible." As the road advances to Tartary it becomes more rugged and runs parallel with the ranges. Near Jehol the Embassy was greatly interested in what attracts all travellers to Jehol, the extraordinary perpendicular formation of indurate clay which rises on a mountain top like an inverted pyramid some 200 feet in height, and which is "left as a monument to the height of the ancient surface of the globe in this particular part of it." The chronicler of the Embassy records that the ascent to Tartary is such that some parts of it have been ascertained to be 15,000 feet above the surface of the Yellow Sea. Amidst these high grounds, and a little beyond the inverted pyramid, the mountains recede more from each other and open the valley of Jehol, with its Imperial Palace and garden, its temples and monasteries, "some set on gentle elevations, some on the plain, and some on a high hill approachable only by rocky stairs of difficult ascent," the valley being watered by a stream gliding gently through it and wafting in its sands many particles of gold.

Jehol is not a commercial centre by any means. It lives on past glory, but is the centre of administration for what is now northern Chihli province. A garrison is stationed there and rail connection to this place alone would be for purely strategical purposes. The collection of houses which is glorified by the name of city is not surrounded by walls, but is

built upon the gently sloping hills, and from the distant passes looks picturesque by virtue of the temples and the trees which cluster about. Climbing up the highest hillsides and surrounding the preserves is the wall of the Imperial Palace, six miles in extent, which was built by the Emperor Chien Lung, over 200 years ago. "Here," writes Mr. John Hedley, in his 'Tramps in Dark Mongolia,' "Chien Lung and some of his successors were wont to go hunting in the Imperial forests still further north, but, in 1861 when the French and British troops battered at the gates of Peking, Hsien-feng, the then unworthy occupant of the Dragon Throne, fled to these hills and there ended his miserable reign. Since which time no Emperor has set foot within the grounds, an uneasy superstition rankling in the minds because the Emperor died there." The valley in which the temples stand is surrounded on all sides by lofty trees. The temples, five in number, are the habitations of Lamas, but the most important is the Patola temple, a replica of the Patola of Lhasa. It has nine tiers of windows, and houses 700 lamas. Standing at either end are magnificent specimens of Buddhist dagobas, topped with golden crests.

The survey of the route from Peking to Jehol for railway purposes disclosed that a line could be built with suitable grades, but beyond Mi-yun-hsien, about 43 miles from Peking, a considerable amount of heavy rock cutting and tunneling would have to be done. The line would practically be an extension of the railway at present in operation to Tungchow, and from that place to Mi-yun-hsien the country is fairly easy, but two bridges would be necessary, one over the Yun Liang-ho, at Shun-yi-hsien, 300 feet long, and the other over the Peiho, 900 feet, about 2½ miles south of Niu-lan-shan. From Mi-yun-hsien to Shih-hsia the line crosses the Chao-ho on a 700 ft. bridge about four miles from Mi-yun-hsien, and leaving the Chao-ho takes a pass to the north via Mu-chia-yu with a grade of 1 in 100, and with a short section of somewhat heavy rock cutting.

Another bridge of 300 feet over the Mang-niu-ho, and country giving a general grading of 1 in 400, takes the line to Shih-hsia, beyond which heavy cutting is again necessary. A tunnel 300 feet long leads to Hsin-kai-lung, and the line, developing to the east, crosses the Chao-ho again on a bridge 700 feet long, and turning north through an unavoidable tunnel of 600 feet enters directly at the front of the town of Ku-pei-kow, at the Great Wall. In passing Ku-pei-kow the space is very limited between the Wall and the river, and it will be necessary to utilise the space occupied by the Wall for a short distance. From this point a more northerly route than the main road is taken, easier grades being available (from 1 in 100 to 1 in 200) until La-ho-kow is reached. The line then sets due north with grades up to 1 in 70, or a tunnel 4,000 feet long through the Shih-pa-pauling, when a down grade is obtained of 1 in 100 to a valley, past Ping-fong-



Potala Miao, Jehol

tzu, and up again by a 1 in 300 grade to the Pien-lung pass, whence another tunnel 2000 feet long on a 1 in 100 grade is necessary, leading to the village of Nau-tsan-tun. A wide valley through which flows a tributary of the Hsin-chao-ho is availed of to Tatum, easy grades then developing the valley of the Lan-ho the line skirting the foothills on a 1 in 70 gradient, with a short tunnel 500 feet long through a rocky spur at Wu-mu-liang. Several unavoidable bridges are necessary as the line tortuously traverses the Lan-ho valley, much benching and curves with a 2,000 feet radius being required. At Su-tao-ho the line finally crosses the Lan-ho, and, eventually passing through a tunnel, will cross the Yu-tze-ho and enter the Mong-niu-ho valley, skirting the foothills, on a grade of 1 in 70 to 1 in 80, finally emerging through a tunnel of 3,000 feet into the Jehol valley. The exact approach from Kwan-jen-ling to Jehol will require considerable time to locate, as the line will have to develop round the sides of the valley, to the west of Jehol, making the city through some of the poorer suburbs. The station yard will be on flat open ground to the south of the city and on the west bank of the river.

The line from Peking to Jehol crosses the watershed of the Pei-ho on the south, and the Lan-ho on the north, meaning a general rise in grade of over 1,600 feet, and can be built at a comparatively moderate cost considering the mountainous nature of the country.

No survey has been made of the route to Chih-feng, but the line would probably follow the valley of the Je-ho rise over the Huang-hai range, between Mo-ke-men and Wang-veh-tien. It would then drop down the valley of a tributary of the Lacha-ho for some distance, or follow the main road via Liang-pu-fu, and Ta-lo-tu to Chih-feng. The country is mountainous, but the intervening valleys permit of comparatively easy

gradients, and construction might be kept within a cost which would permit of trade being developed to pay cost of operation and interest on the capital outlay within a reasonable time.

From Kalgan to Dolonor.

The Mongolian tableland rises almost abruptly from the plain upon which Kalgan stands, and practically the only difficulty in connecting Dolonor with the railway now operating between Peking and Kalgan, is the rugged range of mountains which lies behind Kalgan and which has in the centuries stood as the barrier against the free advance of Mongol hordes into China. Once that range is surmounted the route over the tableland offers no difficulties, being mostly open undulating country.

At present the road to and from Mongolia traverses what is known as the Kalgan pass, virtually the rocky, sandy bed of what is, in the rainy season, a mountain torrent, and all merchandise is carried either by camels, mules, pack ponies, or in carts. In the dry season Kalgan is a busy city and before the railway was extended towards Shansi it is estimated that altogether some 10,000 animals passed through each day bound in one direction or the other. Even at the present time the traffic from

the surrounding country is very large, the Mongolian caravans bringing in soda crystals—to be converted into blocks at Kalgan for transportation to Peking and elsewhere,—salt, fur, camels' hair, wool, medicines, hides, etc. The soda crystals mostly arrive in small carts with wooden wheels, without tyres, capable of carrying some 650 lbs. and are brought from lakes sometimes more than 300 miles distant. The outward caravans and carts carry European articles, piece goods, tea, oil, cigarettes, candles, etc. At one time the whole of the tea trade of Russia went through Kalgan and over the Gobi on the backs of camels, thousands of these animals being

traders going to or coming from Kalgan, the passage being just broad enough to permit one cart to pass at a time, thus obviating any possible running of the Customs. Thence the road, rough, and difficult to travel on foot leads between rising mountains up a gradual ascent for ten miles, when it becomes precipitous and increasingly rough, to the level of the plateau, fifteen miles from Kalgan. The ascent is 2,600 feet. The township of Han-no-pa, or Pan-pa, is the starting off point for all caravans crossing the Gobi or making for Dolonor or other Inner Mongolian districts. Several roads lead to Dolonor, the shortest being through Shih-pa-tai, Pai-miao-tzetan, Erh-to-wa, Tan-chang-mu-tzu,

Hsiao-ho-tzu, Shang-tai-ho, Talen-ti, Ha-pa-chiao and Chaping. This is a track across an undulating prairie, after a mile of rough ascent from Han-no-pa, bearing N. N. E., past rounded hills and over soil which in the dry weather makes an easy road. Ten miles of travel brings the small village of Shih-pa-tai, a collection of about forty houses, into view. The country in the vicinity is cultivated, wheat and millet thriving, and for the next 33 miles to Erh-to-wa the road runs through well cultivated Chinese farms, small villages being passed and flocks of sheep and herds of ponies and cattle being seen. The



Part of a camel caravan loaded at Kalgan and ready to start across the Gobi Desert for Urga carrying goods for the British American Tobacco Company. The Europeans in charge are Messrs. Rusted (first on the left) and Schroeder (second on the left) of the British-American-Tobacco Company's establishment at Kalgan.

wells are all good. For fifteen miles from Erh-to-wa the country is still undulating and cultivated, and then breaks into valleys from one to three miles across, separated by hills from 200 to 400 feet in height. All the valleys are cultivated. Thirty miles from Erh-to-wa is the village of Hsiao-ho-tzu, and ten miles further is Shang-tai-ho, the village of Ping-to-no being between, but off the road. In this village there is a Belgian mission, the mission people farming in the spring and summer, and hunting in the winter. The country is more level and is cultivated up to Shang-tai-ho, where there is a remount station maintained by the Chinese Govern-



A resting place on the trade route north of Kalgan.

employed. They are also used to transport a large quantity of Chinese merchandise for sale in Mongolia.

From Kalgan to Dolonor the distance is some 145 or 150 miles. The road leads through the gate in the city wall, proceeds between rising hills along the bed of what is a raging torrent when the heavy rains fall, and passes through the Great Wall, which runs down on either side of a well-defined cleft in the hills. Chinese Customs officials here collect taxes from all

ment, the horses being purchased in Mongolia and sent to this station to be kept till drafted out for use in the Chinese army. A number of li mares were introduced here for breeding purposes, but during the recent troubles the Hunghutzes managed to steal many of them.

A plain stretches from Shang-tai-ho for 23 miles to near Ha-pa-chiao where small hills about 100 feet high cluster. The country is used solely for pasturage, grass being exceedingly good in season. Dolonor is some

30 miles distant, the road leading over a level plain, with hills four to five miles away, for about ten miles, when an easy up-grade leads through small hills and sandy country, small lakes occurring near Cha-peng, about ten miles from Dolonor, and continuing practically to Dolonor, where they become marshes. Ducks, geese, and other water fowl abound. A few miles from Dolonor heavy sand is entered, and the road winds among sand dunes to the south gate of the city.

Dolonor, or Lama-miao, as it is very often called, is situated virtually due north of Peking in latitude 42 deg 16 min. A small mud wall surrounds it, the shape of the city being oblong, about half a mile in width from east to west and two and a half long from north to south. The houses are of mud, and the population numbers about 30,000. This is the centre of a great horse trade, ponies being brought in from all over Mongolia for sale to buyers from China. Up to 30,000 are sold annually, and in addition large numbers of cattle and sheep are also disposed of. There are many shops, most of them being devoted to the sale of idols and other impedimenta of temples. Two miles from the town are situated two large well kept temples containing over 1,000 priests, the temples having been built in the time of the Emperor Kiang-hsi.

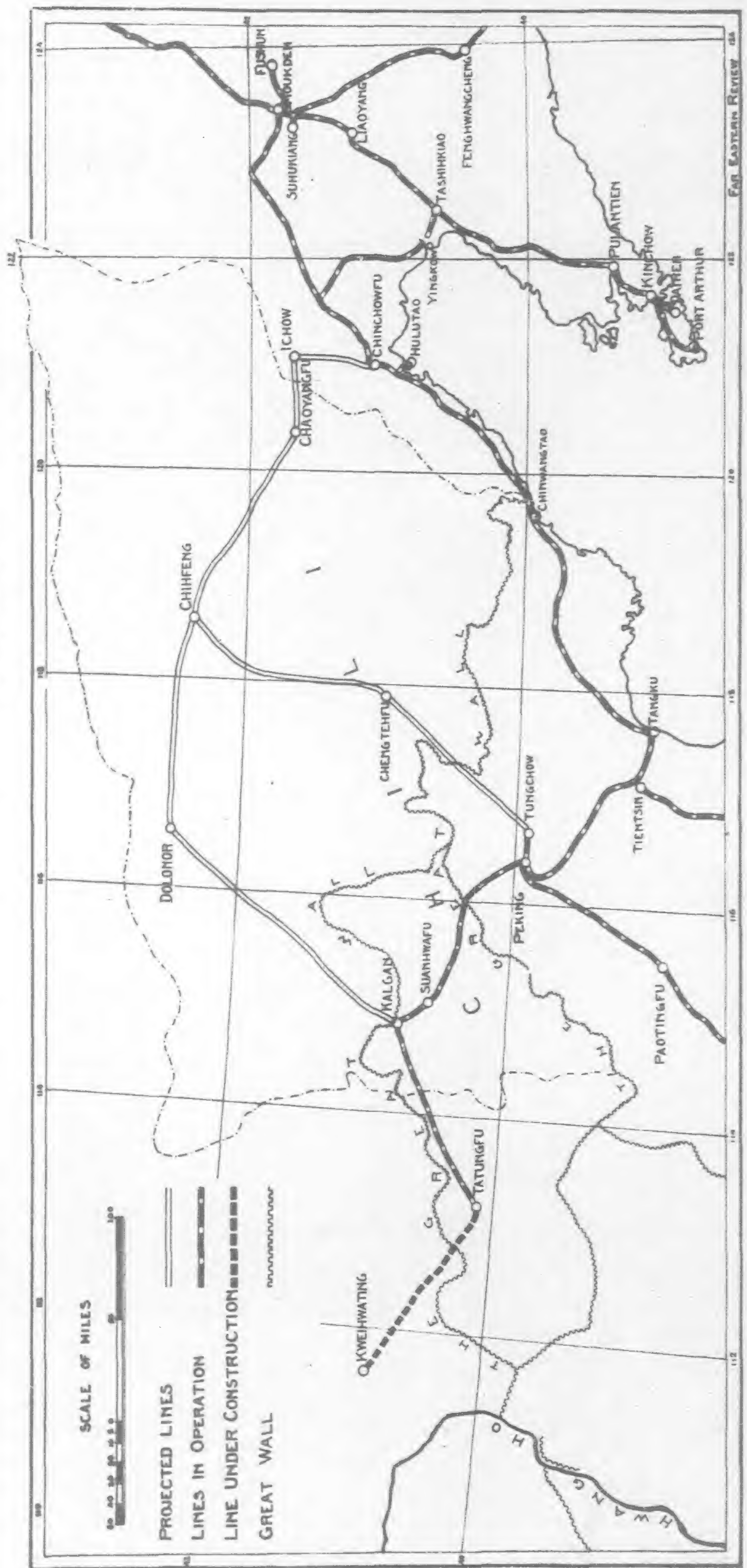
From Dolonor to Chih-feng

The road from Dolonor to Chih-feng runs mostly east-southeast, descends from the Mongolian plateau and crosses the old Imperial Hunting Park, passing through the new district city of Chui-tzu-shan and the towns of Pien-chiang, Pei-ting-tzu and the district city of Liang-pu-fu. There is, one route running from this city to Chih-feng, about 50 miles, almost direct to Chih-feng, another goes south-east through Wang-yeh-fu, and then to Chih-feng. The country is mountainous or hilly practically all the way, the road passing over the southern end and outlying hills of the Kingh-an range.

From Dolonor the road is sandy for about four miles, when the hills close in, and from the village of Chuan-wa-chao there is a rise of one in sixty for two miles, and a small hill 250 feet above the level of Dolonor is crossed, the ascent and descent being at about eight degrees. Descending to the south, a valley running east and west for about four miles is entered, the hills being about 300 to 500 feet in height. The country is grass lands, with very little cultivation, the Chinese farms which marked the western country being absent here. Four miles from this valley the Lwan-ho is crossed, the ford being about 70 yards across, and running two to three feet deep. Beyond, the country is sandy, dunes being continuous, but 25 miles from Dolonor more hills are ascended, and then follows undulating land with small short rises and descents. About are grassy plains but very little cultivation, with hills later on breaking the valley. Passing other valleys cultivated by Chinese the road rises for a mile and a half and then descends through a deep gorge 400 yards wide and two miles long, at a slope of one in ten, later rising at one in eight, and entering a narrow valley fringed with rugged hills. A few farms, with sheep, cattle and horses, break the monotony to the small village of Tung-tzu-kou, whence the road crosses the Ka-ta-ga river, and enters a narrow defile, eventually ascending through a valley for two and a half miles, the road rising at a four degree slope through timbered hills. A descent of three miles at four degrees brings into view a well cultivated valley where the small village of Kao-chia-tien nestles among Chinese farms.

For ten miles the road traverses this fertile stretch, grassy hills rising to 600 feet on either side, and for eight miles descends at about one degree crossing a small stream twice, and eventually paralleling running water for two miles until the intersection of four valleys is reached, where a Chinese village stands. The hills on each side of the valley are rugged, and continue so to the Tai-ku-ling pass, which is reached after a climb of 1,000 feet in a few miles, the slope being one of from ten to twelve degrees. The road then descends for eight miles to Tao-pa-tzu-men, passing through a close and intersected country with grassy hills, the basin of the valley

RAILWAYS TO CONTROL, INNER MONGOLIA



MAP SHOWING THE RAILWAYS LINES TO BE IMMEDIATELY BUILT, AND THOSE WHICH ARE PROJECTED WITH A VIEW TO SECURING THE HOLD OF CHINA UPON INNER MONGOLIA, THE CITIES OF KWEIHWANG, KALGAN, CHIH-FENG, AND HULUTAO, SHOWN ON THIS MAP ARE FIVE OF THE SEVEN, RECENTLY DECLARED OPEN TO FOREIGN TRADE WITH A VIEW TO INTRODUCING NEW FOREIGN ELEMENTS INTO THE REGION TO COUNTERACT RUSSIAN AND JAPANESE INFLUENCE.

being 200 yards across and richly cultivated. Cultivated country continues for some distance the road traversing various valleys to Pei-ting-tzu where the road from Jehol is reached. Several distilleries are established in this vicinity and large houses with walled enclosures are built in the valleys. Indigo is largely produced, nearly every house having its cement vat for the reduction of the indigo by the admixture of lime. Grain is grown in large quantities, and supplies the distilleries, one of which, 15 miles from Pei-ting-tzu, consumes annually about 130,000 pounds of wheat, millet, and kao-liang in making samshui (Chinese wine).

The town of Liang-pufu is built on a broad plain, and is a district city of some 5,000 or 6,000 people. The road from this place to Chih-feng is about seventy miles. To the southeast is the home of Prince Kalachin, the most progressive of the Mongol princes. All his tribe wear queues and cultivate the land, having given up their nomadic existence. His territory is some 70 miles north and south by 140 miles east and west, and as far as is possible is cultivated. The Prince's Yamen is situated among hills, rising to 1,500 feet, and is a large, old-fashioned Chinese Palace, built in the time of Emperor Kiang-hsi. In the village two schools are maintained by the Prince, and in other ways he exhibits progressive tendencies. To Chih-feng the country alternates between mountain ranges and valleys, the road varying from easy to hard going, with some difficulties for railway construction.

Chih-feng is situated, approximately, in latitude 40 degrees and 20 minutes north and longitude 118 degrees and 35 minutes east from Greenwich. It is distant by road about 200 miles from Dolonor, 130 miles north-northeast from Jehol, and 180 west from Chinchow (on the Peking-Mukden railway), by way of Chaoyang. It is a comparatively new town having developed into an important trading centre from a small Mongol village. The name Chih-feng means "red hill," as also does the Mongol name of Wu-lan-ha-ta, by which it also goes, though "Hata" is mostly used for short. It is the largest trade mart in Inner Mongolia, and one of the largest (if not the largest) grain and beef markets in North China, while it is the second largest horse market. It is an unwalled town 2,300 feet above the sea level, three of its six streets being broad, and always full of life and bustle. The population numbers to 40,000 the business men being mostly Chinese. There are seventeen distilleries in the immediate neighborhood. Plenty of coal is to be had at cheap rates, three coal mines being in the vicinity. One is at Yuan-pao-shan, 25 miles to the east, and sells coal in Chih-feng at 45 cents Mexican for 130 pounds. Another mine 22 miles to the west sells hard coal at 30 cents for 130 pounds, while a third mine 30 miles to the south-east sells coal at 45 cents for 130 pounds. Grain is raised in the surrounding valleys, and one estimate of the trade put the annual sale of wheat and millet at 18,000,000 to 20,000,000 pounds weight each, kaoliang 48,000,000 pounds, and beans and corn in lesser quantities. Horses, cattle and sheep are also sold largely. Flax and flax seed oil are produced, while fruits such as peaches, apricots, grapes, melons, etc., are grown. There is a large trade in hides, and a good deal of leather is made. Foreign manufactures such as piece goods, oil, soap, canned goods, fancy articles, enamelled ware, matches, etc., are on sale in the shops, coming mostly by way of Chinchow. The average number of saddle ponies sold per year is from 15,000 to 20,000; mules 10,000 to 15,000. Transportation of all kinds is abundant. The shipping point is Chinchow, six days' haul through a more or less mountainous country. The horses and cattle placed on sale are nearly all brought in by the Mongols from the plains to the north and east, the mules being raised by the farmers in the vicinity.

Chih-feng is situated at the northern edge of a hilly or mountainous section of country. To the south there is a broken country of

hill ranges with large fertile valleys. To the north the Mongolian plains extend for several hundreds of miles. Immediately to the south and west the country is level farming land; to the east and north there are hills from 200 to 400 feet high. Big cart roads lead to Jehol in the south, to Dolonor in the west, to Chinchow through Chaoyang in the south-east, to Pakou in the south-south-east, to Wu-tang-cheng in the north, to Mao-shan-tung and Chengping in the north-west.

Chinchow to Chaoyang and Chih-feng

Any railway built between Chinchow and Chaoyang will pay from the commencement, and it is almost safe to assume that traffic now passing between Chaoyang and Chih-feng, and vice versa, will be sufficient to make a railway cover its operating expenses and interest from the date of opening. Chinchow itself is the centre of a large trade which comes down from the cereal growing districts, and in consequence is a busy place. The main street is narrow and dark, but the shops are numerous and show signs of prosperity—a sign noticeable also in the residential quarters. The

Chinese houses are well built, but made monotonous by the universal use of green paint, and the streets are filled with Peking passenger and other carts. From Chinchow to Chaoyang the route runs over the rolling plain to Ichow, 34 miles from Chinchow, and thus far no engineering difficulties are encountered. The section from Ichow is different. The line passes round a long bend of the Taling river, skirting obstructive rocky bluffs projecting into the river bed. Leaving the river it rises on a rather bad grade through a rock cutting to high land, later dropping over the Lui river and following one of its valleys on fairly easy grades to the watershed where there will be some grading of about 1 in 200, again rising to a deep cutting of about 2,000 feet in length through rock. Thence the line passes to the Lishukow valley, which requires careful surveying, as the valley itself has a grade of about 1 in 120 for some three miles, before it can be

developed out to the Taling river. To cross the Taling river a bridge of about 12 spans of 100 feet each will have to be built at an approximate cost of \$250,000. The bridge will have to be carried on pneumatic founds; perhaps rock bottom will be found at about 20 or 30 feet. After leaving the bridge the line will follow the north bank of the river, and though it will pass through five rocky heads will maintain an average easy grade following the general rise of the country to Chaoyang. The cuttings through the heads will be costly, but most are of soft sandstone. One neck will require a short tunnel of about 300 feet. The total distance from Chinchow to Chaoyang is about 83 miles and the line is estimated to cost about \$4,225,000.

Chaoyang is a prosperous city situated among hills,—the highest of which lie to the south—and was at one time famous as the city of the three pagodas. At present only two stand, one having fallen long ago, the site now being occupied by a temple to the God of War. The city is not walled, contains many fine shops, and is a busy centre of trade. There are several

lamaseries, altogether about 200 lamas being located in the vicinity.

No survey has yet been made from Chaoyang to Chih-feng. The trade road now follows the valleys, which will permit of fairly easy railroad building and passes several important mineral deposits. In fact the whole country round Chaoyang and on to Chih-feng is rich in minerals, and for hundreds of years the Chinese have been digging gold in the vicinity. It is the possibilities of development in this direction which make the future of any railway that may be built extremely bright.



The Motorist in North Chihli has often to make his road as he goes.



Entering the Kalgan Pass. This view conveys a good idea of the character of the country.

LINKING UP KIANGSU AND HUNAN

AGREEMENT SIGNED FOR RAILWAY FROM NANKING TO CHANGSHA

On March 31 at Peking an agreement was signed between the Chinese Government and the British and Chinese Corporation for the construction of a railway linking up Kiangsu and Hunan. This line is to run from Nanking to Ningkwofu and Hweichow and thence through Nanchang to Pinghsiang. The line in operation from Pinghsiang to Chuchow will be taken over by the Corporation.

Branches will be built, from Ningkwofu to Wuhu and from Hweichow to Hangchow.



A Caravan preparing to start after a night's camp on the Kalgan-Urga route.

About 1,000 miles of construction is involved. The line is of great importance both politically and strategically, and in some quarters it is considered that the securing of the Agreement gives reality to the British claim to commercial predominance in the Yangtze Valley. There is to be a British Engineer-in-Chief, Chief Accountant and Traffic Manager. The term of the loan is forty-five years and the security the line itself. The interest on the loan will be five per cent.

A flying survey of the line has already been made. The undertaking will necessitate the flotation of loans amounting to £8,000,000.

The British and Chinese Corporation is to take over the Shanghai-Hangchow-Ningpo Railway, and as a preliminary the Government has been endeavouring to arrange to buy the line from Kashing to Hangchow from the Chekiang Railway Company. The line from Shanghai to Kashing has already passed under Government control. At the end of March some of the shareholders were protesting against the arrangement for transforming the Chekiang Railway into a State line and the matter has not yet been satisfactorily settled.

Mr. A. W. U. Pope, C.I.E., the General Manager of the Shanghai-Nanking Railway, has been appointed an adviser to the Board of Communications at Peking, and was to leave Shanghai for Peking early in April. He has been succeeded in the General Managership of the Shanghai-Nanking Railway, by Mr. A. C. Clear, M.I.C.E., Superintendent of Way and Works.

At the annual meeting of ratepayers of the British Concession, Hankow, a committee was appointed to consider a scheme for running an electric tramway through the Concession.

COMMERCIAL LOANS IN CHINA

A Peking paper reports that in view of the recent Hanyehping loan problem the Government has drawn up a set of new regulations governing the conditions for the merchants borrowing foreign loans. Recently the Government sent telegrams together with these regulations to the Civil Governors and diplomatic officers of the various provinces instructing them to publish them to the public and give due warnings to the merchants. These regulations are as follows:—

(1) Any merchant who borrows foreign loans to undertake business, no matter whether the loan is a new one or has been discussed in the past, should first make a report to the Ministry whose control his occupation is subjected to.

(2) When circumstances necessitate the merchant borrowing foreign loans he should first make a report to the Ministry stating its use and the sources from which he can derive money for its repayment.

(3) Merchants who have been allowed by the Ministry to borrow foreign loans should submit the agreement for such a loan to the Ministry for its approval. No agreement shall be considered as valid if it is signed before the Ministry approves it.

(4) Before the signing of an agreement the merchant should first inform the Ministry, which will send a delegate to witness the signing and no loan agreements shall be considered as valid unless they have been subjected to the above processes.

REFRIGERATOR CARS ON SIBERIAN RAILWAY

The Bourse Committee of Omsk has sent a petition to the Russian Department of Commerce and Industry, which in turn has handed it on to the Railway Bureau, regarding the construction of shore refrigerators for the preservation of valuable fish products at the towns of Nikolaevsk, Khabarovsk and Sryotensk, and also the equipment of refrigerator cars for the conveyance of fresh "keta" to the inland markets during the warm season. Although it is hoped to satisfy these requirements, when the entire Siberian lines are equipped with proper refrigerator buildings, in accordance with the general plan for the adaptation of the system to railway transport, nevertheless, the Railway Administration is anxious to meet the wishes of the petitioners and the needs of the fishing industry, through the provision of refrigerator cars from the railway itself, and to this end it has invited the chairman of the Siberian sub-district committee for the regulation of freight transport in bulk on the railways, at the town of Novo-Nikolaevsk, to explain the extent of the requirements of the fishing industry both as regards shore cold-storage warehouses and refrigerator cars. The chairman of the committee in his turn has applied to the Khabarovsk municipal administration for data with reference to the desirability of the erection at the place of a shore refrigerator, together with statistical information as to the annual export of fish products from Khabarovsk, the precise character of such goods and their distribution monthly, including the destination of the largest shipments. The Mayor of Khabarovsk has handed on this request to the Bourse Committee for reply.

JAPAN AND THE HANYEHPING LOAN

Last month it was announced in these columns that a storm of protest had been caused in certain quarters in China by the announcement that the Hanyehping Company had arranged a loan of \$15,000,000 with Japanese financiers. The Chinese papers have since published what purported to be the text of the Agreements, and we give below a translation.

A thorough investigation into the circumstances surrounding the transaction has been made by the Society for the Investigation of the Industries of China. At a meeting of the Society at Peking on March 15 it was reported that the work of investigation was not yet completed, but a petition was read which it was proposed to forward to the President. This petition suggested that the Government should assume ownership of the Company. The Chairman, Mr. Ting, pointed out that there was an enormous deficit to be faced, and if the Government took over the enterprise it would have to bear responsibility for \$50,000,000. Moreover its hands would be bound by seven agreements on very hard terms. It was decided that the petition should be revised before presentation to the President. This was done and the petition was presented to His Excellency towards the end of the month.

An interesting development has been the announcement that Sheng Hsuan-huai (Sheng Kung-pao) who is alleged to have

arranged the loan with the Japanese financiers, had utilised the preliminary payment on account of the loan to redeem the scrip of his shares in the China Merchants' Steam Navigation Company. This scrip had been lodged in a British Bank, and it is alleged that Sheng Hsuan-huai is now negotiating for the disposal of his shares to Japanese interests. This report has caused something like consternation, as the China Merchants' Company owns property valued at \$25,000,000 and has always been regarded as a national concern, although the Government has recently ceased to take an active part in the management. The outcome of the negotiations for Japanese participation in the ownership and management of the second great undertaking intimately associated with the Yangtze will be watched with interest. Those opposed to the Japanese say that with the control of the Hanyehping Iron Works and the China Merchants' Steam Navigation Company Japan will gain a privileged position in the Yangtze, which will ultimately make for the disadvantage not only of China, but of all other nations interested in the region. Experience has taught, however, that it is unwise to be dogmatic before facts are fully apprehended, and at present the situation continues to be too involved to render it desirable to form a decided opinion.

The Agreements as given in the Chinese Press follow:—

THE HANYEHPING LOAN AGREEMENTS

Agreement A.

Sometime ago on the 30th day of the 4th moon of the 3rd year of Hsuan Tung of the late Ching Dynasty, that is the 1st day of the 5th month of the 44th year of Meiji, the Hanyehping Coal and Iron Factories and Mines Company Limited, (hereinafter called the Company) of the Republic of China concluded an Agreement with the Japanese Iron Works (hereinafter called Iron Works) and the Yokohama Specie Bank (hereinafter called the Bank), for the advancement of Yen 12,000,000 as the price for the purchase of pigiron, to be issued for the extension of the factories and the engineering works. The above was signed by both parties concerned.

After this, on the 11th day of the 2nd month of the 1st year of the Republic of China, that is the 11th day of the 2nd month of the 45th year of Meiji, when the Chinese Government was in urgent need of funds, the Bank advanced to it Yen 3,000,000, and the rest of the proceeds of the above loan were not delivered. At present it has been proposed that at Tayeh, Hupeh, two new furnaces be constructed for the mines, and that extension and reform be introduced into the Iron Works at Hanyang, Hupeh, as well as the railway and electric supply factories of Tayeh, the coal depots, electric factories, etc., of Pinghsiang, Kiangsi, therefore the old proposal is hereby resumed, and the rest of the loan namely \$9,000,000, is settled. The redemption of the loan shall be made by the pig iron and ore which the Company shall sell to the Iron Works. The loan which shall be used for capital shall be raised by the Bank, and the Iron Works and the Bank jointly agree to this agreement, the articles of which are stated herewith:

Art. 1. The amount of loan which shall be lent to the Company by the Bank, is Yen 9,000,000. only.

Art. 2. With regard to the amount of loan stipulated in art. 1, according to the estimate of the expenditure for the new plan of improvement and expansion, to meet the annual expenditure the loan should be paid on the 15th day of the 1st month and on the 15th day of the 7th month respectively. If there be changes in the estimates of the work, or if there be obstacles delaying the progress of the work, the date for the payment of the proceeds of loan shall also be delayed.

Art. 3. When the Bank hands over the proceeds of the loan to the Company in accordance with art. 2, the Company should give a receipt as an evidence of the proceeds of the loan stipulated in art. 1.

Art. 4. The redemption of the loan stipulated by this Agreement shall be made by paying in equal value in ore and pigiron as stipulated in Art. 7. The period for redemption shall be 40 years commencing from the date when this agreement is enforced. Commencing from the 7th to the 16th year, Yen 120,000 shall be repaid annually, commencing from the 17th to the 36th year, Yen 300,000 shall be repaid annually, and commencing from the 37th to the 40th year, Yen 400,000 shall be repaid annually. On the 15th day of the 6th month and the 15th day of the 12th month of the year respectively, the Company shall meet half of the above annual repayment.

In case the Company should be able to raise Chinese capital or real Chinese shares, which besides meeting the expenditure and the obligation of new and old debts, have still a surplus, or in case the profits of the Company have become so large that after deducting the interest, dividend, and setting aside reserve fund, there is still a surplus, the Bank shall agree

to the proposal of the Company to redeem the full amount of principal and interest of this loan or any sum remaining unpaid at that time. However, 6 months' notice must be given to the Bank.

Art. 5. The interest of the loan stipulated by this Agreement shall be paid in the following manner, commencing from the date when the Agreement is signed to the 6th year, the rate of annual interest shall be 7%. But commencing from the 7th year to the date when the loan is redeemed, the lowest rate of the annual interest shall not be lower than 6%. The rate of interest shall then be fixed by the Company and the Bank according to the condition of the market. The interest shall be paid to the Bank, in two instalments on the 15th day of the 6th month and the 15th day of the 12th month of the year respectively. The payment of interest shall be reckoned from the date when the proceeds of the loan are actually paid over.

Art. 6. All the properties which the Company now owns as well as all the properties, movable or immovable, acquired with the proceeds of this loan and the proceeds of the loan made on the 2nd day of the 12th month of the 2nd year of the Republic of China by the Bank to the Company, together with properties which shall be acquired or come into being in consequence of the above properties, shall all be mortgaged to the Bank as security for the loan stipulated by this Agreement and that loan made by the Bank to the Company on the 2nd day of the 12th month of the 2nd year of the Republic of China and Ta Cheng.

With regard to the properties which have been given as security by the Company to the Bank and other creditors besides those which are now given as security for the present loan and the loan of \$6,000,000 made by the Bank to the Company on the 2nd day of the 12th month of the 2nd year of the Republic of China, they shall before the redemption of the said loans, be temporarily pledged to the Bank as 2nd security for the present loan and the loan of \$6,000,000 advanced to the Company by the Bank on the 2nd day of the 12th month of the 2nd year of the Republic of China. When the loans besides the present one and the one of \$6,000,000 advanced to the Company by the Bank on the 2nd day of the 12th month of the 2nd year of the Republic of China are redeemed, and the security for them is no longer needed, the properties shall, without undergoing any other process, become the common security of the present loan and the loan of \$6,000,000 advanced to the Company by the Bank. The list of properties shall be attached with detailed plans, in drawing and clearly marked out which belong to the 1st and which the 2nd security. There shall also be clearly written, the names of creditors, the amounts of loans, and the date of freeing the security. The Company should keep all the title deeds of lands and the agreement with the Bank in the safe of the Accountant's Department of the Company, and there shall be two keys to the safe,—one shall be given to the Chief Accountant and the other to the Bank. Unless it is agreed by both parties, none of its contents should be taken out from the safe.

Art. 7. All the price paid by the Iron Works for the purchase of ore and pigiron (but this does not include the price for the products of the mines for the repayment of debts to two creditors named) shall be deposited in the name of the Company in the Bank, which shall first set apart a certain portion for the payment of the interest of the new and old loans, then the redemption of the portion of the loan for the year as stipulated in the Agreements, and then the amount of capital and interest which should be paid in the year: the Company can then at any time draw

from whatever funds are left. When the Iron Works should pay in to the Bank the above said price, it should forward the receipt of the Bank to the Company as an evidence that the amount has been paid for.

When the Bank receives the price abovementioned it shall consider the amount as a special account for the repayment of the interest and capital of the new and old loans by the Company to the Bank, it shall give to the Company a deposit book as a token of good-faith.

For the balance of the above account after paying the obligations untouched by the Company, the Bank shall pay interest to the Company according to the current rate.

Art. 8. If the price for the purchase of ore and pigiron paid to the Bank by the Iron Works be insufficient to cover the amount fixed by the Company for the payment of the interest and capital of the new and old loans due to the Bank, the Company should make good the deficit by paying ready money.

Art. 9. In case the Company should desire to contract loans or advances from banks or capitalists who are not Chinese, it should give preference to the Bank, and if the Bank fails to meet its need the Company will be free to raise means from other sources.

Art. 10. If the Bank should ask the Company to issue bonds for the purpose of clearing the debts the latter should comply with the request, but the former should first consult with the latter before doing so.

Art. 11. Commencing from the date when the Company has fulfilled all the obligations of this agreement, this agreement shall become void.

Art. 12. The payment of the proceeds and the repayment of capital and interest shall be made in Yokohama.

Art. 13. In case the parties concerned should disagree in the interpretation of the text of the Agreement or its annex, the decision shall be made by the common system of arbitration, and both parties may invite arbitrators to consider the matter.

Art. 14. Six copies of the Agreement together with its Annex should be written in Chinese and Japanese respectively; The Iron Works the Company and the Bank shall each hold two copies as evidence.

Republic of China, 2nd day, 12th month, 2nd year.

Ta Cheng, Japan, 2nd day, 12th month, 2nd year.

(Signed) Sheng Hsuan-huai, Chief of the Board of Directors of the Hanyehping Coal and Iron Works and Mining Company, Limited.

Chief Officer of the Iron Works.

Representative of the Yokohama Specie Bank.

Agreement B.

With the object of redeeming the Short Period Loans of heavy interest, most of which have been contracted from Japan, the Hanyehping Coal and Iron Factories and Mines Company Limited, of the Republic of China (hereinafter called the Company) agrees to redeem them by instalments spreading out for a number of years. The payment shall be made by means of the price of the ore and pigiron sold by the Company to the Japanese Iron Works (hereinafter called the Iron Works,) the loan necessary for the requirement to be raised by the Japanese Yokohama Specie Bank (hereinafter called the Bank.) The Iron Works and the Bank jointly agree to this agreement, the articles of which are stated herewith.

Art. 1. The amount of the loan which shall be lent to the Company by the Bank is Yen 16,000,000 only.

Art. 2. With regard to the amount of loan stipulated in art. 1., the Company has agreed with the Bank that all the debts which the former should repay by means of the present loan, should be submitted in a list to the Bank, which shall, according to the figures in the list, deliver over to the Company the amounts whenever due, so that the Company may transfer them to its creditors.

Art. 3. When the Bank according to the previous article remits the amount to the Company for the repayment of debts, the Company should give receipts to the Bank as a token of the delivery of the proceeds of art. 1.

Art. 4. The redemption of the loan stipulated by this Agreement shall be made by paying in equal value in ore and pigiron as stipulated in Art. 7. The period for redemption shall be 40 years commencing from the date when this agreement is enforced. Commencing from the 7th year to the 16th year, Yen 80,000 shall be repaid annually, commencing from the 17th to the 36th year, Yen 200,000 shall be repaid annually, and commencing from the 27th to the 40th year, Yen 300,000 shall be repaid annually. On the 15th day of the 6th month and the 15th day of the 12th month of the year respectively, the Company shall meet half of the annual repayment.

In case the Company should be able to raise Chinese capital or real Chinese shares, which besides meeting the expenditure and the obligation of new and old debts, leave still a surplus, or in case the profits of the Company have become so large that after deducting the interest, dividend, and setting aside reserve fund, there is a surplus, the Bank shall agree to the proposal of the Company to redeem the full amount of principal and interest of the loan or any sum remaining unpaid at that time. However, 6 months' notice must be given to the Bank.

From art. 5 to art. 14, there is no difference between this agreement and agreement "A," except the date and the amount of loans.

Supplementary Agreement

This Supplementary Agreement is made this day, in connection with the Agreement made on the 2nd day of 12th month of the 2nd year

of the Republic of China, that is, the 2nd day of the 12th month of the year of Ta-cheng for a loan of Yen 9,000,000 (hereinafter called Agreement A) and the Agreement made on the 2nd day of the 12th month of the 2nd year of the Republic of China, that is the 2nd day of the 12th month of the 2nd year of Ta-cheng for a loan of Yen 6,000,000 (hereinafter called Agreement B) between the Hanyehping Coal and Iron Works and Mining Company Limited (hereinafter called the Company) on the one part and the Yokohama Specie Bank (hereinafter called the Bank) and the Japanese Iron Works (hereinafter called the Works) on the other part, the details of which are hereinafter stated;

Art. 1. Commencing from the date on which Agreement A and Agreement B and this Agreement come into force for a period of forty years, the Company shall sell to the Works, in addition to those amounts which have already been stipulated in other Agreements, the amounts of iron ore and pigiron mentioned as follows: 15,000,000 tons of first class iron ore (its quality should be the same as that produced by the Tayeh mine) and 8,000,000 tons of pigiron.

The Works shall notify the Company with regard to the delivery of goods, if iron ore, 2 years beforehand and, if pigiron, 3 years beforehand, and mutually decide upon the amount of goods to be delivered each year.

The Works shall consult with the Company and fix the price of iron according to the standard at which the Works pays for imported iron at the time when it notifies the Company.

The Company may, in accordance with art. 4 in Agreement A, and Agreement 13, repay the whole amount of the loan before the period stipulated in the Agreement, but in doing so it shall not affect the force of this article.

Art. 2. In case the annual output of iron ore by the Company exceeds 1,000,000 tons, the Company may consult the Bank to increase the yearly instalments for redemption of the loan.

Art. 3. The Company shall employ a Japanese engineer, called the Highest Engineering Adviser. The Company is willing to ask the Works to choose such an Adviser as mentioned above.

Art. 4. When the Company undertakes any work of improvement or repair or purchase of machinery, it should consult with the Highest Engineering Adviser mentioned in Art. 3. As to the ordinary daily work, the Adviser may express his opinions and give directions, from time to time.

Art. 5. The Company should employ a Japanese Audit Adviser.

The Company is willing to ask the Bank to choose such an Adviser as mentioned above.

Art. 6. With regard to the receipts and payments of the Company it shall consult with the Audit Adviser, before taking any steps.

Art. 7. Agreement A, Agreement B, and this Agreement shall not be enforced until the following conditions have been fulfilled:—

(a) The conclusion of the Agreement employing the Engineering Adviser.

(b) The conclusion of the Agreement for employing the Audit Adviser and drawing up of the regulations regarding his duty by the Company and the Works.

Art. 8. In case the parties concerned should disagree in the interpretation of the text of this Agreement or its annex, the decision should be made by the common system of arbitration, by which both parties may invite arbitrators to decide the matter.

Art. 9. This Agreement together with its annex shall be made out in six copies in both Chinese and Japanese, two copies of each shall be kept by the Works, the Bank and the Company as evidence.

Annex 1

The Chinese Hanyehping Coal and Iron Mining Company, Limited, on the 2nd of 12th month of the 2nd year of Tacheng concluded an Agreement with the Japanese Iron Works and the Yokohama Specie Bank, for a loan of 9,000,000 Yen and made on the same day another agreement for a loan of 6,000,000 yen. This annex is hereby stipulated in connection with the 2nd clause of art. 4 of these Agreements, and copies are now exchanged, as follow:—

In case the Chinese Government can lend the Company real Chinese capital raised internally, that is, the Chinese Government does not borrow it either directly or indirectly from other countries and, in case, the rate of interest is lower than that of this loan with no security whatever, the Bank shall agree to the proposal of the Company to redeem the full amount of this loan or any sum remaining unpaid at that time with the abovesaid low-interest capital.

This annex shall be made out in six copies each in both Chinese and Japanese, two copies of each shall be kept by the Works, the Bank and the Company as evidence.

The 2nd day of the 12th month of the 2nd year of Ta Cheng.

The 2nd day of the 12th month of the 2nd year of the Republic of China.

Annex 2

According to the second clause of Art. 1 of the Agreement made on the 2nd day of the 12th month of the 2nd year of Tacheng or the 2nd day of the 12th month of the 2nd year of the Republic of China, between the Hanyehping Coal and Iron Mining Company, Limited and Iron Works and the Yokohama Specie Bank on the other part it is provided that the selling price of the iron ore shall be regulated by the standard at which the works pays for imported iron at the time when the works notifies the

Company, etc. It is hereby again stated that the price shall be fixed by the mutual consent of both parties and the Works shall not force the Company to accept the price which the Works offers for the imported iron, so as to show fairness.

This annex shall be written six copies in both Chinese and Japanese two copies of each shall be kept by the Works, the Bank and the Company as proofs.

The 2nd day of the 12th month of the 2nd year of Ta Cheng.

The 2nd day of the 12th month of the 2nd year of the Republic of China.

Agreement with the Highest Engineering Adviser

This Agreement made this day, the 15th day of the 12th month of the 2nd year of the Republic of China between the Hanyehping Coal and Iron Works and Mining Company (hereinafter called the Company) on one part and (大島道太郎) (hereinafter called the Adviser) on the other part, the articles of which are stated hereinafter.

Art. 1. The Company undertakes to engage at Hanyang or Hankow the Adviser for five years commencing from the 11th day of the 1st month of the 3rd year of the Republic of China, that is the 11th day of the 1st month of the 3rd year of Ta-cheng of Japan to the 10th day of the 1st month of the 8th year of the Republic of China and Ta-cheng of Japan, to this the Adviser has also given his consent.

Art. 2. The Adviser shall acknowledge the power and duty of the Chairman of the Directors and the Chief Manager (or acting Manager) of the Company. The duties of the Adviser should be according to those stipulated in the agreement between the Company and the Japanese Iron Works, a copy of which is attached herewith and shall be recognised as a part of this agreement.

Art. 3. In case the Adviser fails to or is unwilling to perform the whole or part of his duty, the Company, with the consent of the Works, shall have the power to discharge him, after giving him notice three months previous to the date of his discharge.

Art. 4. The Adviser shall devote all his time and attention to the business of the Company, and, without the consent of the Company, the adviser shall not be allowed to undertake any business other than that of the Company, either directly or indirectly, for himself or for others, or to take up other occupations.

Art. 5. Without the consent of the Chairman of the Board of Directors the adviser shall not let any letters or other records of the Company in his keeping be made known to others. But he may give necessary hints to the Yokohama Specie Bank or the Iron Works for the protection of their interests.

Art. 6. As the position of the Adviser is important and his relationship to the Company is intimate, his attitude towards the company should be careful and attentive and he should be always kind and friendly to the Chinese with whom he deals.

Art. 7. The Company provides for the Adviser an unfurnished private residence suitable for his position; expenses for heating, lighting, medicine and medical attendance should be paid by the Company. Should it be necessary for him to remain in a hospital not belonging to the Company, the Company shall pay the medical bills for him.

Art. 8. From the 11th day of the 1st month of the third year of the Republic of China and Ta Cheng of Japan and as long as the agreement remains in force the Adviser shall receive Yen 20,000 a year from the Company as his salary, which shall be paid in equal monthly instalments.

If the Company is able to re-pay its loans contracted from the Yokohama Specie Bank and the Iron Works before the time mentioned in art. 1 and 10, the Adviser shall be entitled to receive the whole amount due to him according to the full term of service as stipulated in this agreement. When the adviser travels for the business of the Company, the Company shall pay him all the actual expenses besides 20 dollars a day for allowance from the date of his departure to the date of his return. When the Adviser comes to the Company to assume his duty or leaves the Company after the expiration of the agreement or is discharged during the period of the Agreement, the Company shall pay him travelling expenses and other fees as provided in the previous article.

Art. 9. The leave of absence which the Adviser is entitled to have is two months a year, if his absence does not exceed the limit, the remaining days may be saved for the year following.

Art. 10. If neither of the two parties inform the other to discontinue the Agreement 3 months before the date of its expiration, the agreement shall continue to be operative for a period of 5 years.

Art. 11. If there is any dispute between the two parties in connection with the Agreement, each may appoint an arbitrator to settle the dispute. If the opinion of these two arbitrators disagree with each other, the two parties may conjointly ask a third man in writing to pass judgment upon the matter, and his judgment shall be final.

Hereby the seals and signatures of the parties concerned are affixed on the 15th of the 2nd month of the 2nd Year of the Republic of China and Ta Cheng of Japan.

(Signatures)

Regulations Regarding the Duties of the Audit Adviser

According to Art. 5 of the Supplementary Agreement concluded on the 2nd day of the 12th month of the 2nd year of the Republic of China

and Ta Cheng of Japan between the Hanyehping Coal and Iron Factories and Mines Company, Limited (hereinafter called the Company), and the Japanese Iron Works and the Yokohama Specie Bank (hereinafter called the Bank), the Company has consented to engage a Japanese Audit Adviser. The following are the duties and responsibilities of the said Adviser, fixed by the Company and the Bank:

1. With regard to the financial affairs of the Company, the Audit Adviser shall be the adviser of the Chairman of the Board of Directors and the Chief Manager or Acting Manager of the Company. His advice shall be consulted, but he shall not enforce any thing at his own responsibility or issue direct orders.

2. With regard to the affairs in connection with the receipts and payments of the Company the Audit Adviser shall be consulted before they are carried into effect; but as to the funds in connection with the daily receipts and payments, no previous advice is needed. This article does not govern items which can be investigated by the Adviser afterwards.

3. Should the Audit Adviser think it absolutely necessary, he may submit his proposals regarding the best method for the solution of the financial affairs of the Company, but the Company shall have the right of making the final decision.

4. Should the Audit Adviser deem it necessary he may engage a Japanese Assistant, and the Company shall bear all the expenses. However with regard to the salary and the contract of the said Assistant they must first be approved by the Chairman of the Board of Directors, the Chief Manager or the Acting Manager.

5. Unless it be through the hands of the Chairman of the Board of Directors, or the Chief Manager, or the Acting Chief Manager, the Audit Adviser shall not have any official dealings with persons besides the members of the Company.

6. In case the Audit Adviser should leave his post on account of the expiration of contract or some other cause, all the books and documents of the Company which are under his control should be handed back to the Company as they shall be at that time.

7. In the performance of his duties, the Audit Adviser may at any time investigate the properties owned by the Company the despatches and documents, and the reports of the enterprises. He may also demand statistics to be made for the above, or may make inquiries.

8. With regard to the new loan, the redemption of loans, or changes made in the contract of loans, no matter whether they be great or small, the Company should first consult with the Audit Adviser.

9. When the Company wants to accept any proposal which affects the properties the Audit Adviser should first be consulted.

10. The Company shall deliver over to the Audit Adviser the estimates made by the Highest Engineering Adviser with the Company regarding the repairs or construction of factories, railways, jetties and anything in connection with the mines.

11. The following are items which shall be consulted and decided between the Company and the Audit Adviser:

- (1) The annual estimates of receipts and expenditure.
- (2) The annual report of the profit and loss accounts; the properties and the debts; and all other reports concerning business.
- (3) The disposal of either part or whole of the properties, and the increase or decrease of the capital.

12. The Company shall hand over to the Audit Adviser the monthly estimate of the expenditure of the factories and mines, fixed by the Company and the Highest Engineering Adviser as reports.

13. The Company shall report to the Audit Adviser the changes and the increase or decrease of salary of the engineers, assistant engineers or other employees.

14. With regard to the fixing of regulations governing the employees who handle money in the offices, factories, railways and mines, the Audit Adviser shall first be consulted.

With reference to the above articles, and art. 5 of the Supplementary Agreement the salary for the Adviser engaged by the Company shall not exceed Yen 15,000 annually, which shall be paid in monthly instalments by the Company, the responsible persons of both parties concerned shall sign and affix their seals as a token of good faith.

There shall be six copies of these regulations made out both in Japanese and Chinese, two copies of each shall be kept by the Iron Works, the Company and Bank for witness.

Republic of China, 15th day, 12th month, 2nd year.

Ta Cheng, Japan, 15th day, 12th month, 2nd year.

(Signatures)

Regulations Regarding the Duties of the Highest Engineering Adviser

With reference to Art. 3 of the Supplementary Agreement concluded on the 2nd day of the 12th month of the 2nd year of the Republic of China and Ta Cheng of Japan, between Hanyehping Coal and Iron Factories and Mines Company, Limited (hereinafter called the Company) and the Japanese Iron Works (hereinafter called the Works) and the Yokohama Specie Bank (hereinafter called the Bank), the Company has consented to engage a Highest Engineering Adviser. The following are the duties and responsibilities of the said Adviser, fixed by the Company and the Bank:

1. With regard to technical matters, the Highest Engineering Adviser shall be the adviser of the Chairman of the Board of Directors, the Chief

Manager, (or Acting Chief Manager) of the Company. His advice shall be sought, but he shall not enforce anything on his own responsibility or issue direct orders.

2. With regard to the plans for improvements and repairs in connection with the working of the Company, and the purchase of machinery, etc., the Highest Engineering Adviser shall first be consulted before they are carried into effect; but with regard to the daily affairs in connection with the works the said Engineering Adviser may at any time submit his opinions and plans for them.

3. Should the Highest Engineering Adviser think it absolutely necessary, he may submit his proposals regarding the best method for the improvement of the technical works, but the Company shall have the final right of making decision.

4. Should the Highest Engineering Adviser deem it necessary he may engage a Japanese Assistant, and the Company shall bear all the expenses.

However with regard to the salary and the contract of the said Assistant, they must be approved by the Chairman of the Board of Directors and the Chief Manager (or Acting Chief Manager.)

5. Unless it be through the hands of the Chairman of the Board of Directors or the Chief Manager (or the Acting Chief Manager), the Highest Engineering Adviser shall not have any official dealings with the persons besides the members of the Company.

6. In case the Highest Engineering Adviser should leave his post on account of the expiration of the contract or some other reason, the drawings, maps and documents of the Company which are under his control

shall be all delivered back to the Company in such condition as they shall be at that time.

7. In the performance of his duties the Highest Engineering Adviser may at any time institute an investigation regarding the progress of the engineering works of the Company, and the condition of other enterprises. He may also demand that necessary statistics be made, or may make inquiries.

8. With regard to the plan of works for the year, the Company should first consult with the Highest Engineering Adviser before making any decision.

9. The Company shall report to the Highest Engineering Adviser the changes and the increase of salaries of the engineers, and assistant engineers.

In witness of the above articles and Art. 3 of the Supplementary Agreement, which provides that the salary of the Highest Engineering Adviser should not exceed the amount of Yen 20,000 annually, which shall be paid by the Company in monthly instalments, etc., both parties concerned hereby set their signature and seals as a token of good faith.

There shall be made six copies of the present regulations both in Japanese and Chinese, and the Iron Works, the Company and the Bank shall each keep two copies as a proof.

Ta Cheng, Japan, 15th day of the 12th month 2nd year.

Republic of China, 15th day of the 12th month of the 2nd year.

(Signatures.)

CHINA'S NEW MINING REGULATIONS

The new Mining Regulations were promulgated on March 11. By Article IX of the Mackay Treaty of 1902 China agreed that the Mining Regulations should be framed so as to offer no impediment to the attraction of foreign capital, or place foreign capitalists at a greater disadvantage than they would be under generally accepted foreign regulations. A translation of the Regulations follows:—

Chapter I. GENERAL RULES.

Art. 1. Mining enterprise includes prospecting, actual mining and other business connected with them.

Art. 2. Mining rights are rights to prospect and operate mines.

Art. 3. Subjects of the Republic of China or persons who have become subjects of the Republic of China by proper process of law may secure mining rights.

Art. 4. Subjects of treaty nations may secure mining rights when doing joint business with subjects of the Republic of China. But in such cases they must be subject to these regulations as well as other laws connected with them.

Foreigners will not be allowed to hold more than half of the total number of shares of the mining concern.

With regard to the foreign subjects mentioned first in this article (unnaturalized foreign subjects) they shall be required to present to the Minister of Agriculture and Commerce or the Director of the Mining Supervision Office a certificate issued by their own diplomatic officer or consul proving that they are willing to be subject to these regulations and other laws connected with them.

Art. 5. When two or more persons join in a mining business or petition to start a mining business, they should choose one as representative, and notify the Director of the Mining Supervision Office of their respective district; in case they fail to do this the Director shall appoint one of them according to his own decision, to act in that capacity.

The persons who join in a mining business or petition to start a mining business as stated above shall be considered as persons who have entered into partnership under contract or agreement.

Art. 6. The following are minerals in their respective classes:

Class 1: gold, silver, copper, iron, tin, lead, antimony, nickel, cobalt, manganese, zinc, aluminium, arsenic, mercury, molybdenum, bismuth, platinum, iridium, barium, chromium, uranium, various kinds of coal, diamonds and various kinds of precious stones.

Class 2: rock crystal, asbestos, mica, corundum, emery, apatite, nitrates, pyrite, borax, flourspar, feldspar, peat, bitumen, pitch, meerschum, Kaolin diatom, trololite, magnesium earth, fuller's earth, stones used for pigments such as ochre red earth, etc., gypsum, sulphur, pumice stone, marble, (for ornamental purposes) talc, graphite, amber.

Class 3: slate, porphyry, earthy lime, limestones, sandstones, granites, marbles, white marble, dolomite, marl, clay, fireclay, and other kinds of stone quarried for building or other useful purposes.

Salt and kerosene oil shall be exploited only by the Government, and therefore will not be included in the above three classes.

Art. 7. For minerals not specified in the above tables the Minister of Agriculture and Commerce may classify them according to his judgment from time to time.

Art. 8. With regard to the minerals specified in Article 6 (including waste mines and extracted ores), unless permission has been obtained from the Government none shall be allowed to make investigation or start operation. But this does not include the various mineral resources which are owned by the public.

Art. 9. With regard to the minerals specified in Article 6, Class 1, the party which petitioned first for the mining right shall be given the first privilege to secure the Mining Rights regardless whether he be owner or non-owner of the surface land property.

Art. 10. With regard to the minerals specified in Article 6, Class 2 the owner of the surface land property shall have the first right to secure the Mining Rights. But in cases where the owner declares that he does not wish to secure the Mining Rights or when the party having registered fails to work the mine within one year, the Minister of Agriculture and Commerce or the Director of the Mining Supervision Office may sanction others in securing such Mining Rights.

Art. 11. With regard to the minerals specified in Article 6, class 3 they shall be exploited by the owner of the surface land property or leased by him to others to exploit, but in each case it shall be reported to the local superior administrative official, to secure his approval.

The local superior administrative officials, when approving such requests, should notify the Director of the Mining Supervision Office.

Chapter II. MINING AREAS

Art. 12. Mining Area is an area of land within which the possessor of Mining Rights has secured the sanction of the Government to prospect or to operate the mines.

Art. 13. Land coming under the following heads shall not be given as mining areas:

1. Land within one li from the boundaries of the building or tombs of ancient sages and Emperors or Kings.

2. Land in close connection with fortifications, military strategic points, naval bases and areas of importance to the offices and factories of war supplies, without permission from the governing officials.

3. Areas within one li from the territories of commercial ports or trading markets, without permission from the governing officials.

4. Areas within four hundred feet from the sites of official or public buildings, parks, famous ancient monuments, public roads, railways or water supplies and water ways, without permission from the governing official, owner or people who are responsible for such properties.

Art. 14. Mining areas shall be marked with straight lines. The space under ground within the area of the mining right shall be bounded by vertical planes dropped from the surface boundary lines.

Art. 15. The surface area of the mining areas shall be reckoned by square li or mow. 60 square chang make one mow, and 540 mow make one square li. (one chang is 10 Chinese feet.)

Art. 16. A coal mine area shall have a surface between 270 mow and 10 square li. Other mines between 50 mow and 5 square li.

With regard to the above rules the Minister of Agriculture and Commerce may increase or decrease when he deems it necessary under special conditions.

Art. 17. Not more than two different Mining Rights shall be established within one mining area except when the rights are for minerals of different natures or under circumstances stated in Article 35.

Art. 18. Permission should be secured from the Director of the Mining Supervision Office when tunnels are opened outside the mining area for the purpose of draining, ventilation or transportation. The tunnel site shall not be considered as a mining area.

When in the course of making a tunnel mineral ore is discovered, the Director of the Mining Supervision Office should be notified at once.

Upon receiving the above information the Director of the Mining Supervision Office, if he is satisfied that such minerals are worth exploiting, may set a time limit and compel the owner of the tunnel to take it into his mining area.

Chapter III. MINING RIGHTS.

Art. 19. Mining Rights shall be considered as rights of possession, and are subject to the laws governing unmoveable properties; but when one possesses rights of possession other than Mining Rights in the same mining area, the rights of possession of other properties shall still exist.

Art. 20. Mining Rights should not be surrendered to others in part.

Art. 21. With the exception of the case of handing down as legacy, transfer, fines for delaying to pay proper tax, or the seizure by the authorities, Mining Rights should not be made use of as an object of privileges. However, the right to operate a mine may be pledged as security.

Art. 22. With regard to the following cases petitions should be sent to the office of the Director of Mining Supervision for registration but when the Mining Right is under restriction (of obligation) no registration for business failure will be allowed:

1. The establishment, change, transfer, cancellation or restriction of the Mining Rights.

2. The establishment, change, transfer, cancellation or restriction of the pledge when the Mining Rights are pledged as security.

3. Withdrawal of partnership from the mining business.

Art. 23. Rules relating to the registration provided in the previous article shall be fixed separately by order of law.

Art. 24. With regard to the registration mentioned in Article 22, no case shall be considered valid until it has been registered; but this will not include cases pertaining to legacy of Mining Rights, expiration of Mining Rights and sale by auction as provided in these regulations.

Art. 25. Those who wish to prospect for mines shall first secure the sanction of the Director of the Mining Supervision Office by presenting him with a request together with drawings and explanations. The Director may, when he deems it necessary, instruct the local officials or send special deputies to investigate into the case or make personal inspections.

Art. 26. The time limit for prospecting shall be limited to two years.

Art. 27. Minerals secured when prospecting shall not be sold or used until the Director of the Mining Supervision Office has approved of it and taxes have been paid in accordance with these regulations.

Art. 28. Those who wish to operate a mine shall first submit a petition together with drawings and explanations to the Minister of Agriculture and Commerce through the Director of the Mining Supervision Office for approval and then register in the office. The Minister of Agriculture and Commerce may, when he deems it necessary, order the Director or send special deputies to investigate into the case or to make personal inspections.

In accordance with the previous article the Director of the Mining Supervision Office may instruct the local officials to investigate or make personal inspections.

Art. 29. The man who petitions to undertake the mining business may alter his name, etc. But at the time of investigation and at the time of operation, unless he petitions the Director of the Mining Supervision Office and the Minister of Agriculture and Commerce respectively, it will have no effect.

Art. 30. The petitioner for the operation of a mine should prove that the area for which he applies does contain the mineral he wants to operate.

Art. 31. If the petitioner does not submit a sufficiently complete plan and description, the Director of the Mining Supervision Office or the Minister of Agriculture and Commerce may set a date demanding correction, or the submission of another petition. Should there be no correction or new petition forthcoming within the fixed period, the petition will be rejected.

Art. 32. If the Minister of Agriculture and Commerce or Director of the Mining Supervision Office should consider the place which has been petitioned for investigation suitable for mining operations, he may set a date asking the petitioner to petition for the right of operation and if after the lapse of the period no such petition be submitted the petition of others may be considered.

Should the Minister of Agriculture and Commerce consider that the place for which a petition has been received asking for the right of operation, needs further investigation, the above provision should be followed.

Art. 33. Should the situation and condition of the area petitioned for operation be not in accordance with the real situation and condition of the bed of the mine, thus injuring the interests of the mine, the Minister of Agriculture and Commerce may set a period demanding that a petition be sent for correction. It after the lapse of the fixed period no petition is received for its correction the petition will be rejected. However the petitioner may also ask for correction without being instructed to do so.

Art. 34. Should the Minister of Agriculture and Commerce and the Director of the Mining Supervision Office consider that the area applied for for mining enterprises would injure the public interest or not be worth while for such enterprises, no permission will be given.

Art. 35. If on account of the situation and condition of the bed of the mine it be necessary to dig through an adjacent mining area, a consultation should be made with the neighbour, to obtain a certificate allowing such acts and a petition should be sent to the Minister of Agriculture and Commerce through the Director of the Mining Supervision Office to alter the mining area.

If it be not for the above reasons that it be desired to dig through to the adjacent mining area, besides obtaining written permission from the neighbouring proprietor of the mining enterprise, the permission of the mortgagee, if there be any, should also be obtained, and submitted by a petition.

Art. 36. If the area or portion of the area applied for for investigation be the same area which has already been obtained by others, the petition for that area should be rejected, if the mineral be also similar.

Art. 37. If the area applied for for operation be the same area which has already been obtained by others, a petition for that area should be rejected, if the mineral be also similar. But this does not apply to the case as stated in art. 35.

Art. 38. If the area or portion of area applied for for operation be the same area which has already been obtained by others for investigation, art. 32, clause 1, shall apply if the mineral of the mine be similar.

Art. 39. If the area applied for for mining enterprise be the same area which has been obtained by others the Director of the Mining Supervision Office shall give information to the latter if the mineral stated in the application be not similar to that of the latter, but this does not include the case when injury would be done to the mining enterprise of others.

Within sixty days of the above information the proprietor of the mining enterprise may have preference to the right of the new mining enterprise.

The above two clauses shall not apply to the case as started in art. 35.

Art. 40. If the area or portion of area applied for for investigation, or for operation be the same as that which has been applied for for investigation or operation by others, the one who sent in his petition first shall obtain the right. In case both persons send in their petitions at the same time, the Director of the Mining Supervision Office shall set a period instructing the petitioners to hold a consultation between themselves and then submit their petitions again.

If no petition be forthcoming within the set period, the right should be settled by casting lots.

The above provision made in the 1st clause shall not apply to cases specified in arts. 33, and 35 and case specified with "but—" in art. 39.

If the area applied for for investigation be the same as that which has been applied for for operation, and the mineral be similar the latter application shall have the preference if the petitions be sent at the same time.

Art. 41. Within thirty days after the expiration of the period for investigation the person who has the right of investigation shall have preference over others, with regard to an application for mining similar mineral.

With regard to the application for the right to mining enterprise in the above area by others if the minerals applied for by others be not similar, art 39 shall apply. In this case the one who applies first shall obtain the right.

Art. 42. Should the man who applied for the right of investigation, now apply for operation of the same mine, and should there be similar applications from others, the date when he forwarded the application for investigation shall be considered as the date he sent in his application for operation. But this does not include the case provided for in art. 40, clause 4.

The above shall also apply to the case when the applicant for the operation of a mine shall change his application to that of investigation.

The provision contained in the two above clauses shall not apply to the case when the period fixed has lapsed as stated in art. 32 and art. 33, clause 1.

Art. 43. In case of an increase or decrease, the amalgamation or division or any other alteration in the area of investigation a petition shall be addressed to the Director of the Mining Supervision Office for sanction and registration. If the changes be made in the area of operation a petition should be forwarded to the Minister of Agriculture and Commerce through the Director of the Mining Supervision Office for approval following which registration in the Office should take place before it can have legal effect.

Art. 44. The operator of the mining enterprise should from time to time submit the working plans with drawing and explanations, to the Director of the Mining Supervision Office, for decision.

The possessor of the Mining Right shall operate the mines according to the plan and description passed by the Director of the Mining Supervision Office.

With regard to the plan and description of the above no change should be made without the approval of the Director of the Mining Supervision Office.

Art. 45. The proprietor of the Mining Right shall provide a detailed map and drawing of the underground works of the interior of the mine and a working record book which shall be kept in the office of the mining enterprise. A duplicate copy of each shall be submitted to the Mining Supervision Office.

The forms for the above drawing and book shall be fixed by the order of the Ministry of Agriculture and Commerce.

Art. 46. For any of the following causes a Mining Right of the proprietorship shall be cancelled:

(1) If after being registered for one year, no operations have begun without any reasonable cause, or in the course of operations a suspension has been made for one year or more.

(2) If the mining enterprise injures the public interest.

(3) If no compliance has been made with the order of the police, who according to the mining police regulations have instructed that some

precautions should be made to avoid disasters or that a temporary suspension should be made.

- (4) When the passed plans and descriptions are not followed.
- (5) When no mining tax is paid when due.
- (6) When sanction has been given for operations by mistake.

Art. 47. The following rules should be observed when the proprietor of the mining enterprise pledges his right as security for loans:

(1) When the Mining Right is pledged as security for a loan, it will have no legal effect if a petition has not been sent to the Minister of Agriculture and Commerce for approval.

(2) After the right is pledged as security should the proprietor wish to divide, amalgamate, decrease, or increase the area of the mine, the approval of the lender or lenders should be obtained.

(3) When the Mining Right by official authority or on the proprietor's own accord is cancelled the Director of the Mining Supervision Office after the registration shall inform the lenders to whom the right is pledged. Within 30 days after the receipt of the information the lenders may petition the Director of the Mining Supervision Office requesting an auction of the mining enterprise. But this does not apply to the case when the Mining Right has been cancelled in accordance with the provisions made in the 2nd and 6th clauses of article 46.

(4) Within the time when it is on sale or during the process of auction, the right which has been withdrawn may still be considered as existing.

(5) After deducting the fees to the auctioneers and repayment of debts the balance of the sale shall be handed to the proprietor of the mining enterprise.

(6) The buyer of the Mining Right should have legal standing according to the provisions made in art. 3 and art. 4. He shall be considered as having obtained the Mining Right from the time when the original Mining Right was registered for cancellation.

Art. 48. If the proprietor of a mining enterprise disposes of the enterprise when his Mining Right has been cancelled the provisions in 4th, 5th and 6th clauses of the previous article should be followed.

Art. 49. When a petition is received applying for investigation or operation, if it be necessary that officials should be appointed to proceed to the place for investigation, the expenses of the officials thus sent shall be defrayed by the petitioner.

Art. 50. In case the neighbouring proprietor of a mining enterprise or other person concerned should find that there is something which needs investigation, he may petition the Director of the Mining Supervision Office requesting that officials be appointed to make investigation. But he must bear all necessary expenses.

Chapter IV. LAND USED FOR MINING PURPOSES.

Art. 51. The words "person concerned" used in this Regulation refers to the person who has right to the land used for mining purposes.

Art. 52. The "indemnity money" referred to in this Regulation refers to the price and rent of the land, and also refers to the compensation for the ordinary and actual losses incurred by the landlord and the person concerned.

Art. 53. In case there is necessity for the petitioner for the Mining Right or the proprietor of the Mining Right, to make a survey or investigation in other men's property, he may do so with the approval of the Director of the Mining Supervision Office.

After the above approval is obtained, previous notice should be given to the landlord or the person who has the surface right to the land, before such operation are carried out.

Art. 54. In a case where it is necessary to remove obstacles from the place so that a proper survey or investigation may be made, it must be done with the approval of the Director of the Mining Supervision Office.

After the above approval is obtained, previous notice should be given to the landlord or the person who has surface right to the land, before the work of removal can be started.

Art. 55. In order to prevent impending danger the proprietor of the Mining Right may enter the territory of others, or make use of it, but at the same time he must petition to the Director of the Mining Supervision Office and information should immediately be conveyed to the landlord or the person who has right to the land.

Art. 56. Should any loss be incurred to the landlord or person concerned on account of the events stated in the three previous articles, the proprietor of the mining enterprise should pay proper indemnity money.

Art. 57. For the following causes the proprietor of the mine may use the land of others:

- (1) Opening shafts and digging tunnels.
- (2) To put extracted ores, earth and stones, the rubbish after blasting operations, materials, etc., etc.
- (3) The erection of mills for the dressing of ores, or smelters for the smelting of ores.
- (4) The construction of large and small railways, roads and canals for transportation, water or gas pipes, drainage, pools, or wells, aerial tramways and telegraph lines.
- (5) Construction of works and other labours necessary for mining enterprises.

Art. 58. When the land of others is utilized by the proprietor of mining enterprises according to the provisions of the above, the approval of the Director of the Mining Supervision Office shall first be obtained. At

the same time a petition should be submitted with the plan and description, to the Director of the Mining Supervision Office for approval.

When the Director of the Mining Supervision Office gives the above approval, he shall notify or inform the landlord or the person concerned.

After the above information is given should the proprietor of the mining enterprise desire to obtain the right to the land he should consult with the landlord or the person concerned.

With regard to the provisions of the above two clauses, should the land belong to the officials the sanction of the officials of the said district should be obtained.

Art. 59. When the land is utilized the landlord or the person concerned should be compensated adequately.

Art. 60. If the land be used for more than three years, or if the land after being used has changed its condition so as to be unfit for any other use, the proprietor should consult with the landlord, or at the request of the landlord the price of the land may be given once according to the market rate. But after the enterprise is suspended or the use of the land is over, the land should be handed back to its original owner.

Art. 61. In a case where the use of a certain portion of land has decreased the value of the rest of the land, or has involved other kinds of losses, the landlord and the person concerned should be adequately compensated.

With regard to the rest of the land, which has lost its former utility; the provision of the previous article shall be followed.

Art. 62. Should it become necessary to erect or to alter the roads, drainage, walls, fences and so forth on account of utilizing the land of others, adequate compensation should be given. But this does not include the matter which has been settled according to art. 60.

Art. 63. After the notice or information of the 58th article is given should the landlord, or person concerned, desire to alter the form of his property, put up new structure, altering the old structure, or to make wholesale repairs, etc., the approval of the Director of the Mining Supervision Office should be obtained, failing which no such compensation should be demanded.

Art. 64. After the notice or information of the 58th article is given should the mining enterprise be abandoned or changed, thus causing loss to the land, the proprietor of the mining enterprise should give adequate compensation to the landlord or person concerned for the losses incurred.

Art. 65. The landlord or the person concerned may demand adequate security from the proprietor of the mining enterprise for compensation.

Art. 66. If the use of the land has been mutually arranged by the landlord or person concerned and the proprietor of the mining enterprise, or has been fixed by the officials, or by a committee, while the arrangement for compensation or security has not yet been fixed, the proprietor of the mining enterprise may deposit an amount for compensation or find a guarantor, so that he may make use of the land at once.

Art. 67. The landlord or the person concerned may refuse permission for the use of land if the proprietor of the mining enterprise should fail to give a sum for compensation or to furnish a guarantor.

Art. 68. Within the period when the land is used the right of ownership of the property should temporarily be held by the proprietor of the mining enterprise, and its other rights should be temporarily suspended. But this does not apply to the case when no injury will be done to the utilization of the land.

Art. 69. After the use of the land is over the proprietor of the mining enterprise should restore the land to its original condition and return it to the original landlord. If the former condition cannot be restored, thus causing loss to the landlord, compensation should be given, but regarding the case stated in art. 60, it shall not apply.

Art. 70. With regard to the rules governing the use of land, the same shall apply to the right of the use of water.

Chapter V. MINERS.

Art. 71. Labourers who work in connection with a mining enterprise are called miners.

Art. 72. The regulations governing the duties of miners fixed by the proprietor of the mining enterprise should be sent to the Director of the Mining Supervision Office in his district for approval before they can come into force.

Art. 73. The proprietor of the mining enterprise shall prepare a book registering the name of miners according to the form furnished by the Ministry of Agriculture and Commerce, and shall keep it in the office of the mining concern.

Art. 74. With regard to the wages of miners, they shall be paid in current money on previously fixed date or dates either in one or two instalments every month.

Art. 75. At the request of the miner the proprietor shall issue to him a certificate, stating plainly the period he has served in the mine, what kind of work he has been doing, his qualifications, his rate of wages and the cause of his dismissal, when he leaves the employ.

Art. 76. In case any miner is wounded, ill, or dies in consequence of his services rendered to the mine, the proprietor shall pay medical or compassionate allowances.

Art. 77. With regard to the age of miners, the hours of work, and the women and child workers, the Minister of Agriculture and Commerce may issue regulations.

Chapter VI. MINING TAXES

Art. 78. The mining tax shall be divided into two classes, 1. tax on the mining area and 2. tax on the mining product.

Art. 79. The rates of taxes on the mining area are as follow:

(a) During the period of operation for minerals classified as Class 1 of article 6 each mow shall be taxed 30 cents per annum. But with regard to the placers of platinum, gold, tin, and iron in the bed of a river each ten chang in length shall pay a tax of 30 cents per annum. Minerals of class 2 under article 6 each mow shall pay a tax of 15 cents annually.

(b) If it be during the period of investigation the rates for the above tax shall all be reckoned at 5 cents.

Art. 80. The above tax on mining area is distinct from and in addition to the land tax.

Art. 81. The rates of taxes on mining products shall be classified as follows:—

(a) With regard to the minerals of the 1st class of art. 6, 1.5% of the market price of the place where the ores are produced shall be levied.

(b) With regard to the minerals of the 2nd class of art. 6, 1% of the market price of the place where the ores are produced shall be levied.

Art. 82. The tax on the mining area and the tax on mining product as stated in article 79 and article 81 respectively shall be paid in two instalments.

Art. 83. With regard to the third class minerals specified in art. 6 no tax on mining area, or on product will be levied.

Chapter VII. POLICE OF THE MINES.

Art. 84. With reference to the affairs in connexion with police of the mines they shall be managed by the Minister of Agriculture and Commerce and the Director of the Mining Supervision Office, and their regulations shall be fixed by Ministerial orders of the Ministry of Agriculture and Commerce.

Art. 85. If the Minister of Agriculture and Commerce or the Director of the Mining Supervision Office should consider that there is danger or anything that would tend to impair the public interest in connection with the works of the mine, he may instruct the proprietor of the mining enterprise to take precautionary measures or to suspend the work temporarily.

Art. 86. The Minister of Agriculture and Commerce or the Director of the Mining Supervision Office may demand the employment or change of experts employed by the person who has the right to operate the mine. With regard to the qualifications and responsibilities of the above experts they shall be fixed by Ministerial Orders of the Ministry of Agriculture and Commerce.

Art. 87. Within one year of the cancellation of the Mining Right the provisions for precautions against danger shall continue to have force.

The Minister of Agriculture and Commerce, or the Director of the Mining Supervision Office may instruct the original proprietor of the mining enterprise to take precautions against danger.

Chapter VIII. JUDGMENTS, COMPLAINTS AND LAWSUITS.

Art. 88. With regard to the granting or refusing to grant the Mining Rights an appeal may be lodged with the Minister of Agriculture and Commerce within three months of the decision should the petitioner take exception to it. If the decision be against law or causing injury to the right of the party, administrative lawsuits may be brought against the authority concerned.

Art. 89. With regard to the failure to settle the points by consultation provided for in clause 1, art. 35, petitions may be sent to the Director of the Mining Supervision Office for decision.

If the above decision be not agreed to by the party, appeal may be made to the Minister of Agriculture and Commerce. If the decision be against law or causing injury to the right of the party, administrative lawsuits may be brought against the authority concerned.

Art. 90. When the proprietor of the mining enterprise does not agree with the decision for the cancellation for the Mining Right he may appeal to the Minister of Agriculture and Commerce. If the decision be against the law, or causing injury to the right of the party, administrative lawsuits may be brought against the authority concerned.

Art. 91. If no settlement can be arrived at with regard to the use of the surface land the compensation money, or the guarantee, the proprietor of a mining enterprise may petition the Director of the Mining Supervision Office for decision.

With regard to the above decision concerning the use of the land, should either party refuse to accept the decision, an appeal may be sent to the Minister of Agriculture and Commerce. If the decision be against the law,

or causing injury to the party, administrative lawsuits may be brought against the authority concerned.

With regard to the decision of the first clause in this article concerning the compensation money and guarantee, if the decision be not accepted by either party, a lawsuit may be brought up in the local Court.

Art. 92. If exception is taken with regard to the decision, whether by the defendant or otherwise, the party may appeal or bring an administrative lawsuit within 60 days after receipt of the information of the decision. In cases when the person who appeals or brings such an action has not received a formal decision or an official notice, the period shall be reckoned from the date when the decision is publicly notified.

Art. 93. If foreigners, who have been partners with Chinese citizens in mining affairs, or who have been employed by the Chinese, should have any dispute in connection with mining affairs, the case must be settled by the decision of the Director of the Mining Supervision Office.

Chapter IX. PUNISHMENTS.

Art. 94. Any person who should obtain the Mining Right by fraud, or should secretly operate the mines before obtaining the Mining Right shall receive a punishment of imprisonment not exceeding three years, or a fine not exceeding \$3,000.

Art. 95. Any person found secretly selling or mortgaging the Mining Right shall receive a punishment similar to that in the previous article.

Art. 96. If by mistake operations should be carried outside the registered mining area, a fine not exceeding \$500 shall be inflicted.

Art. 97. When a person is fined or punished in accordance with the provisions of any of the above three articles, the ore he has obtained shall be confiscated, and if the ore has been sold or made use of, the proceeds should be paid to the authority.

Art. 98. In case of a violation of the provisions of art. 13 or non-compliance with the instructions of art. 85 or art. 87 clause 2, a fine not exceeding \$500 shall be imposed.

Art. 99. In case of a violation of the provisions made in art. 27, art. 44, or art. 74, a fine not exceeding \$200 shall be imposed.

Art. 100. In case of a violation of the provisions of arts. 54, 72 or 73, a fine not exceeding \$100 shall be imposed.

Art. 101. In a case where the proprietor refuses to allow an investigation or stops the officials of the district from investigating the books or articles in connection with a mining enterprise, a fine not exceeding \$50 shall be imposed.

Art. 102. Any proprietor of a mining enterprise who tries to evade or has evaded a tax shall be fined three times the amount of the tax.

Art. 103. In case where the provisions of these regulations or orders issued by the authority of these regulations be violated, the following provisions in the Criminal Law should not be followed, viz: commutation, the severer punishment for the repetition of similar offence, or one punishment for several offences put together.

Art. 104. Should the proprietor of the mining enterprise be not an adult person or a man who has been forbidden to undertake any enterprise, the provision for punishment made by these regulations shall apply to his legal agent. But when the person who is not an adult has the same ability as the adult this shall not apply.

Art. 105. When the agent, employe or other person who has been in the enterprise, violates these regulations in connection with a mining enterprise, the proprietor shall not be exempt from the punishment under these regulations on the ground that the offence did not originate with him.

ANNEX.

Art. 106. These regulations shall have force from the date of their promulgation.

Art. 107. Within 6 months of the promulgation of these regulations all the mines which obtained certificates previously shall according to these regulations send in petitions for registration.

Art. 108. Within six months of the promulgation of these regulations all the annual rent for mining area and output taxes hitherto levied according to the old regulations, shall be received accordingly, and those which have not reached the half year, shall be reckoned by the month.

Art. 109. The mining tax on the ores of Class 3 in art. 6, which tax has been instituted as local tax before the enforcement of the present regulations shall continue to be so as heretofore. However, it shall not exceed one-fifth per cent. of the value of the products.

Art. 110. With the exception of those which have been provided for in other laws and orders, the provisions made in these regulations shall apply to the official mining enterprises.

Art. 111. The contracts and agreements made before the enforcement of the present regulations, for the raising of foreign capital for the development of mines, shall continue in force as heretofore.

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RAILWAY TUNNELLING IN CHINA

From a Paper read before the Engineering Society of China at Shanghai by Mr. M. H. Logan.

It has been the author's good fortune to have been connected with two great engineering enterprises in which tunnelling played a great part, namely, the hill section of the Assam-Bengal Railway in India, and the British section of the Kowloon-Canton Railway on the mainland of China; the first of these railways traversed from necessity the lower slopes of a valley in which the spurs and bluffs were the remnants of old slips from the main hills, and the tunnelling involved was of a very heavy character; the second railway pierces the Kowloon range of hills in a tunnel nearly a mile-and-a-half in length and then skirts a rugged indented coast line in which are three other tunnels through varying material. It is the author's intention, in this paper, to describe the construction of the tunnels on the Kowloon-Canton Railway, British section, of which there were five, of the following lengths:—

Now.	1.	150 feet.	
"	2.	7,212 "	(Beacon Hill Tunnel)
"	3.	329 "	
"	4.	180 "	
"	5.	923 "	(Taipo Tunnel)

All these tunnels, with the exception of the Beacon Hill Tunnel, were built for a double line of rails, the latter on the score of cost being built for a single line only.

The Kowloon-Canton Railway is built on the standard gauge of 4ft. 8½in. and starts at a point on the mainland opposite the centre of the city of Victoria on the island of Hongkong; traversing a piece of reclamation some 40 acres in extent it enters the foothills in a cutting, the vertical depth of which is for several chains over 150ft. and in some places actually 200ft.; the spoil from this cutting was needed for forming the reclamation, otherwise a tunnel would most certainly have been the more economical course to adopt; approaching the main range of hills which divides the harbour of Hongkong from the waters of Mirs' Bay, the railway runs in heavy cutting through a series of foothills and enters the Beacon Hill Tunnel at a point some three miles from the terminus. Emerging from the Beacon Hill Tunnel on the far side of the divide from Hongkong it continues down the Shatin Valley for some two miles and again strikes the sea coast which it follows for about eight miles to Taipo, Mile 13, where it again turns inland and passing the watershed in another very heavy cutting it enters the Sheungshin Valley and follows this to the Chinese frontier at the Samchum River. The work on the British section of the railway is, with the exception of the last five miles, of a very heavy character throughout.

THE BEACON HILL TUNNEL.

The Kowloon range of hills through which the Beacon Hill Tunnel passes is of granite formation, but the rock is by no means regular, and is for a considerable portion of the tunnel much distorted and decomposed. The approach cuttings at either end of the tunnel were begun in May, 1906, and two shafts were also commenced a month later, the first 98ft. in depth at a point some 350ft. in from the south portal, and the second at the north portal.

Difficulties with labour were considerable at the start of the work, the unhealthy condition of the valleys at the faces of the tunnel proving a great obstacle, malaria fever of a virulent type being prevalent and causing a large amount of sickness among the labour force, both foreigners and Chinese. Chinese contractors from Hongkong were unwilling to undertake work except at rates which were exorbitant and labour was consequently difficult to obtain; under such conditions it became necessary

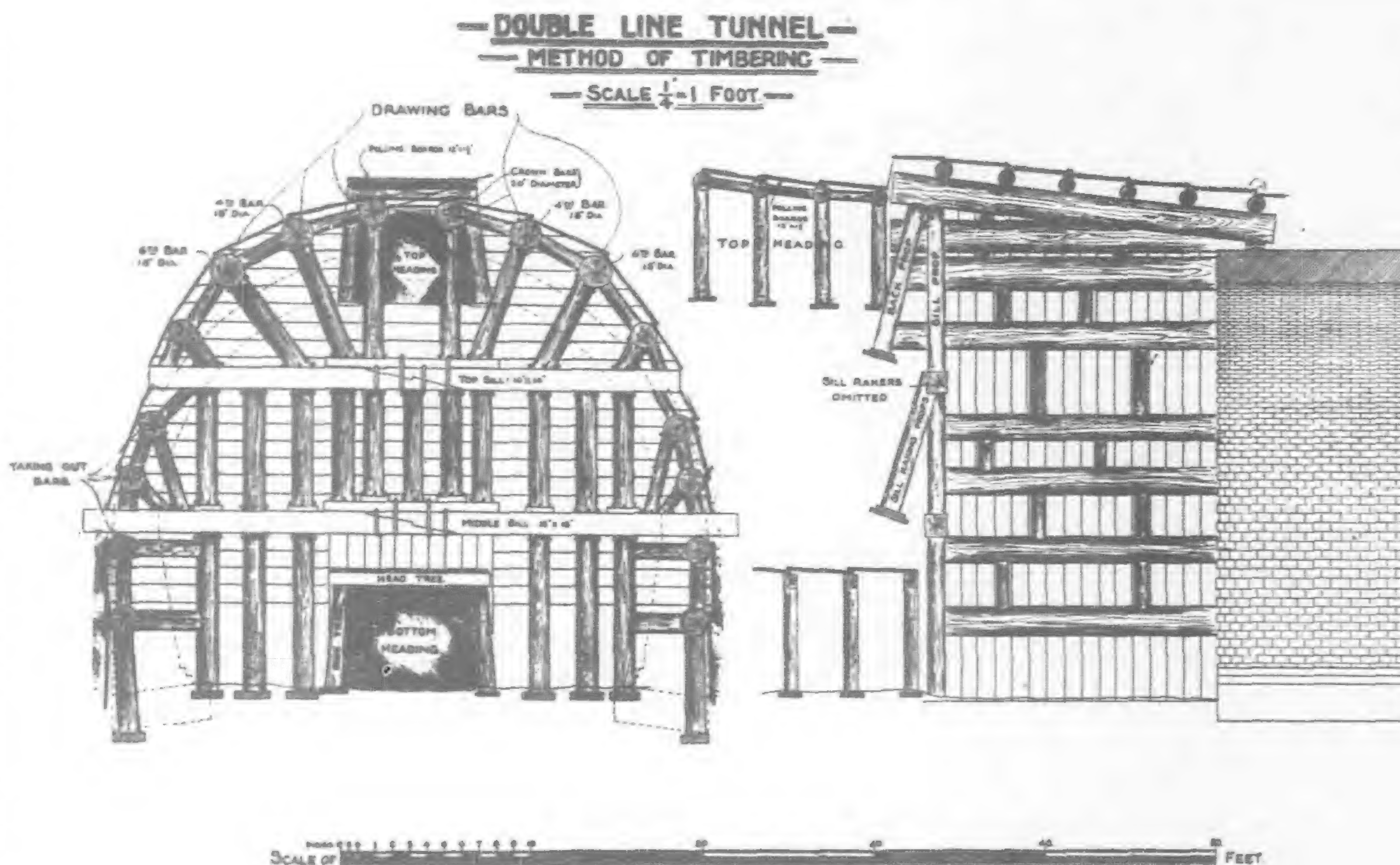
to import labour, and arrangements were made to obtain a number of skilled tunnel men from India. The large amount of tunnelling on the hill section of the Assam-Bengal Railway completed in 1903 had produced a number of men well trained to such work, and the author being in touch with some of these men was able to obtain within a few months a very useful nucleus of a skilled labour force with which to attack the formidable task of driving a tunnel a mile and a half in length in a country where climatic conditions were adverse and labour with any experience of underground work difficult to obtain. About 150 men were actually imported from India and were followed at intervals by others who were employed on the works as required. The first batch of Indians included men of several races—Pathans from the north-west frontier of India, Mekranies from the littoral of the Persian Gulf, Punjabis, both Sikhs, Hindus, not Sikhs, and Mohammedans and Purbeahs or Hindustanis from the United Provinces; some of these men had but recently worked on the Nushki Tunnel on the Quetta-Seistan Railway on the extreme northwest frontier of India where machine drills had been used and were, therefore, most useful in handling the compressed air-drills which were used on the Beacon Hill Tunnel.

During the months of June, July and August, 1906, in spite of heavy rains and malaria, much development work was done at both faces of the

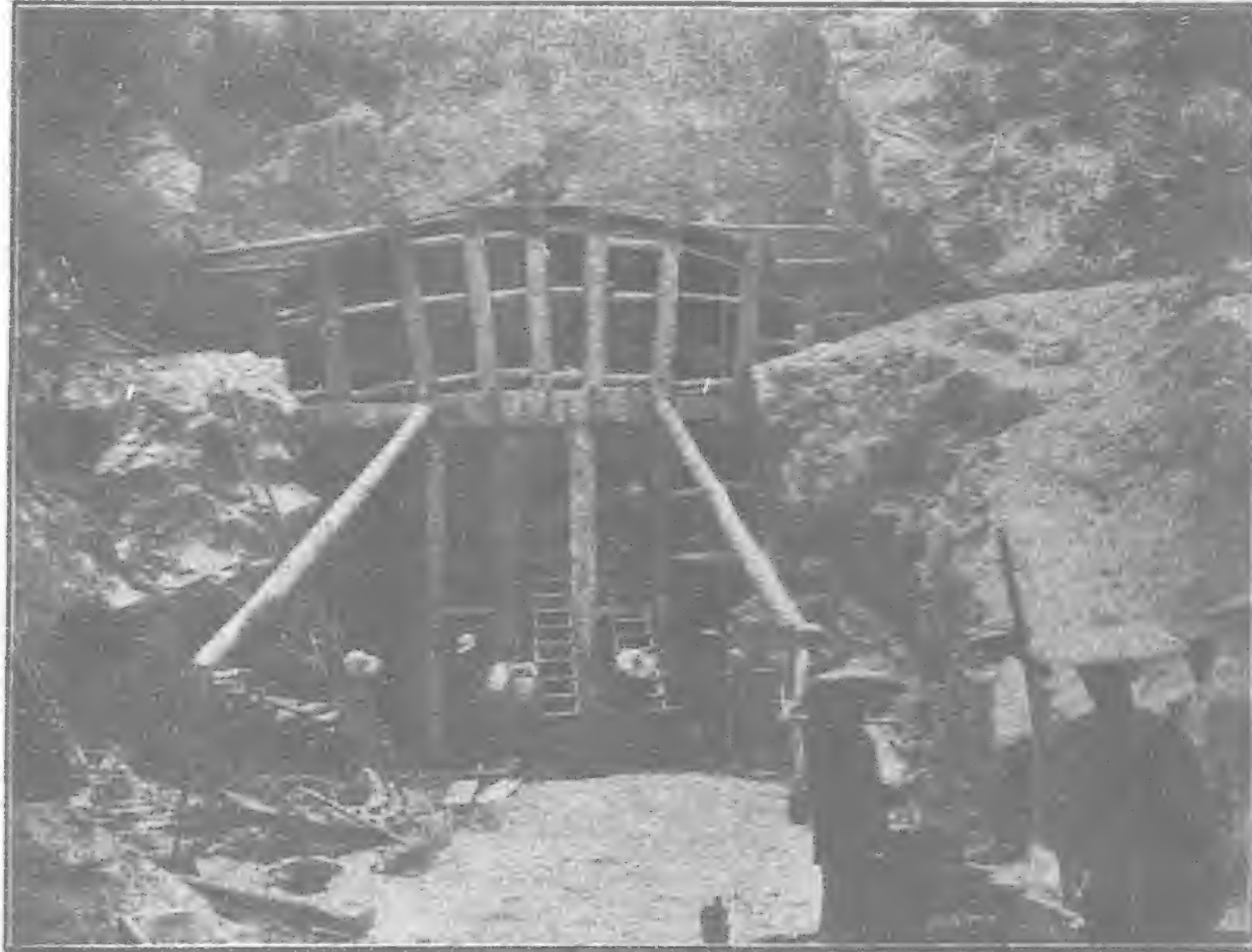
tunnel. Service roads were made, sites for workshops, Power-houses and quarters for the labour force were levelled and buildings erected; reservoirs for water supply were built and a service line of railway on the metre gauge some 2½ miles in length connecting the south face of the tunnel with the main stores depôt at Taikoksui in Hongkong harbour was laid.

The shaft sinking proceeded slowly throughout July and August. Sickness among the labour force, and the large amount of water met with rendering good progress difficult. On September 16, 1906, occurred a

disastrous typhoon which wrought immense havoc in Hongkong harbour, and destroyed practically the whole of the temporary matched quarters and workshops at both faces of the tunnel, resulted in the flooding of the shafts at either face and the drowning of the pumps. The shaft at the north face had by this time reached formation level, and a setting had been got in at each face of the heading, but the sudden flooding, caused by the heavy rain which accompanied the typhoon, caused a cave about fifteen feet from the bottom, and made it questionable as to whether it was worth while attempting to "pick up" the caved-in portion and re-timber it or to wait for the approach cutting. A second typhoon of greater intensity followed close on the heels of the first towards the end of the month, and for the second time in a month the work was brought to a standstill; the temporary quarters and workshops, which had again been erected during the interval, being all levelled to the ground, and the shafts again flooded. This second flooding caused the abandonment of the shaft at the north portal, and efforts were concentrated on the shaft on the south side. At a depth of sixty feet a very tough inelastic decomposed granite was met with, which was badly fissured and yielded an immense amount of water; two Pulsometer pumps of 3in. and 2in. delivery were the only pumps available at the time in the Colony, and it was with the greatest difficulty, baling also having to be resorted to, that the shaft was kept sufficiently free of water to enable the work of sinking to be continued. This tough decomposed granite continued to the bottom of the shaft and on into the hill for several hundred feet, and it was a most intractable material to deal with, tough as leather and yet explosives had very little effect upon it. A pick re-bounded from it and holes could be drilled into it only with difficulty, the grains of quartz continually falling in from the sides of the hole and jamming the drill. A full charge of dynamite produced



practically no effect upon it, and a progress of about 1ft. 6in. in twenty-four hours in either shaft or heading was all that could be effected for several weeks. This toughness was undoubtedly due to the large amount of water with which the material was charged, and when the heading from the approach cutting joined up with the shaft headings and enabled the hillside to be thoroughly drained, a great improvement was noticeable, and the material was then very much more tractable. During the sinking of the last 35ft. of the south face shaft and also for the first 300ft. of the heading, water was encountered in



KOWLOON-CANTON RAILWAY.—Tunnel No. 4.

great quantities, neither candles nor lamps could be kept alight and a small dynamo driven by a Hornsby-Akroyd oil engine was temporarily installed to light the shaft and heading. Much trouble was also experienced with fuses for the explosives owing to the extreme dampness, and eventually submarine fuses were obtained and fired electrically with varying success.

During February, 1907, an 18in. Schram's air-compressor was installed at the south face and towards the end of the month the drills were got to work, both in the shaft headings and the heading from the approach cutting.

BOTTOM HEADING, NORTH FACE.

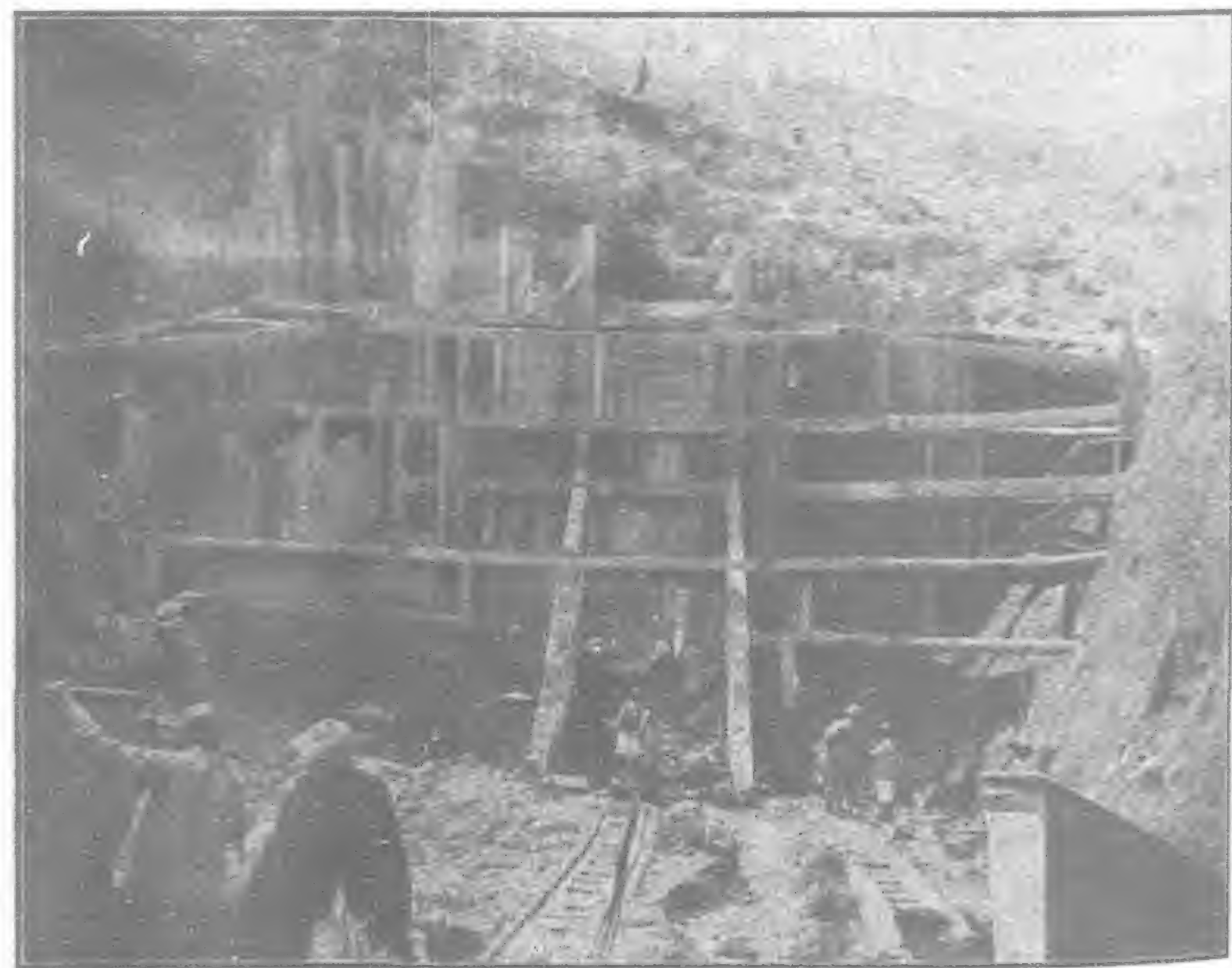
The bottom heading at the north face was begun early in January 1907, and made good progress through decomposed granite of a somewhat different character from that met with at the south face. Although better progress was obtained at the north face than at the south, considerable weight came on the heading timbers and it was necessary to close poll all round and to use cill stretchers at the foot of the side trees.

The size of the bottom heading was 8ft. 6in. by 7ft. clear of timber and was sufficient to admit of a metre gauge road being laid up to the working face. The timbering used in the bottom heading at the north face for a length of over 500ft. in from the portal consisted of head tree 12in. by 12in. Oregon pine, side trees, 12in. by 12in. Oregon pine, set on 14in. by 14in. hardwood foot blocks, cill stretchers 10in. by 10in. Oregon pine, poling boards 12in. by 2in., settings 3ft. 6in. apart. Side trees were given 6in. sprag or rake inwards. Three eight-hour shifts were worked at the beginning of the year and the Indians driving the heading made very good progress through the first 500ft., averaging two settings or 7ft. in the three shifts. At about 500ft. in from the face the ground began to harden and a partially decomposed rubbly rock was met, with veins of decomposed felspar, and the progress, which had up to this point been good, began to fall away; the ground was too hard to mine with the pick alone, and the machine drills, which had by this time been installed, jammed constantly in the rubbly fissured rock. Explosives, too, were most ineffective, the backs or fissures in the rock rendering it difficult to obtain a shattering or even shaking effect; progress continued slow for several months as long as this intractable material lasted, and heavy timbering was required, weight coming on the timbers as soon as the ground was excavated. The great difficulty in driving this heading was to obtain a sumping effect on account of the seamy and decomposed character of the rock. The general scheme of drilling was as follows:—Five or six holes, averaging 5ft., were drilled round the centre of the heading face, radiating towards the centre in the form of a cone; at the sides, bottom and top, other holes were drilled parallel to the direction of the heading; the centre holes were each charged with three to four sticks of blasting gelatine and were given shorter fuses than those on the outside, all being lit simultaneously with a piece of blasting gelatine stuck on the end of a stick and set alight. This method of firing was found to be the most satisfactory, two men being employed to fire. The progress obtained in the decomposed rock at each round was generally not more than a foot or 18in., and it was then necessary to dress the face down with picks before the drills could be got to work again. The drills were constantly jamming in the fissures and old holes, and were withdrawn with difficulty. As

long as the decomposed rock lasted it was not found necessary to take down the drills off the heading bars on which they were mounted, and they were simply slewed round away from the face and left; as soon as a round of shots had been fired a man went to the face and turned on a compressed air-cock which discharged air into the heading and cleared the face of smoke. In about twenty minutes the men were able to get back to work. The original scheme in driving the tunnel was to push right through with a bottom heading and to put in break-ups at intervals of 500ft., but the slow progress obtained in the very intractable material at the south face of the tunnel during the months of October, November and December 1906 made it seem probable that the completion of the tunnel might be delayed beyond the estimated time, and it was, therefore, decided to put down another working shaft at the north face of the tunnel, at the furthest practicable point in from the portal. This third shaft was begun in January 1907, and was of a total depth of 268ft. It was estimated that it would be down to formation by the end of May, but owing to great delay in the delivery of a sinking pump and other machinery ordered from England which did not arrive until the middle of July, it was well on into September before the shaft reached formation level, and the difficulties encountered in sinking it were great. The size of the shaft was 13ft. by 10ft. clear of timber and as it was intended to use this shaft throughout the construction of the tunnel special twin cages and a hauling engine were ordered from England for the purpose. The first 70ft. was in what is known in the colony of Hongkong as red earth, a form of decomposed granite not difficult to excavate, but requiring timbering and close polling. At 70ft. rock was struck and with the rock water was encountered, which increased in quantity as the shaft went down and the rainy season came on.

The first 30ft. or so of the shaft was sunk with an ordinary jack-roll or wooden windlass and small wooden skips, but from this depth to formation the work of hoisting was performed by an 8 H.P. Lidgerwood hoisting engine with the drum braked by a friction clutch, and iron crane skips containing a third of a cubic yard. The head-gear for the permanent hoisting plant, (which arrived late after the completion) of the shaft was erected at an early stage and consisted chiefly of 14in. by 14in. Oregon pine square timber framed and bolted together. The timbering of the shaft consisted of framed settings of 10in. by 10in. timber 4ft. apart with 1½in. polling boards. A large sinking pump had been ordered from England early in January by cable and was expected to arrive in March, but was not actually delivered until the middle of June, and then with some of its parts missing, so that it could not be utilized until the end of July, and the bulk of the sinking was done under considerable difficulties with two No. 6 Pulsometers, raising 12,000 gals. per hour, working in two lifts, the bottom one pumping into an iron tank fixed at about 85ft. from the surface and the second pump lifting the water from this tank to the surface. In addition to the pumps the hoisting engine and skips were largely employed in lifting water, and baling added largely to the cost of sinking this shaft.

The first 70ft. were sunk by departmental labour, but after this depth had been reached a piece-work contract was arranged with three Italian miners and the remainder of the work in the sinking of the shaft was carried out by them with a grit and determination, working as they were under most difficult conditions, deserving of the very highest praise. Explosives, timber cut to size, all tools and labour for sharpening same,



KOWLOON-CANTON RAILWAY.—Taipo Tunnel, South Face, March, 1908.

coal and all labour connected with hoisting, and lights were supplied to them, and their contract lay in providing labour for excavation and timbering. The rock at this point of the hill was hard, but full of fissures and drilling and blasting were as in the heading matters of difficulty; the fissures were mostly nearly vertical and contained bands of decomposed material, which caused the drills to deflect and jam frequently. A line of air pipes was run up the hill to the shaft from the power house at the portal early in March and extended trials were made with the machine

drills, but the constant jamming in the fissured rock induced the miners to abandon their use and to resort to hand-drilling. The same methods of drilling as were adopted in the heading were resorted to and a series of holes sloping towards a central point in the form of a cone were drilled being heavily charged and fired with short fuses so as to provide a free surface for the straight downward holes to blow to. Progress in the fissured rock was slow and was further retarded by the presence of large quantities of water which found their way in through the joints in the rock, and by the absence of a suitable pump to deal with such quantities. At a depth of 160ft. the hoisting rope began to give trouble, the continued oscillation of the buckets causing the unwinding of the lay of the rope, and it became necessary to reverse the rope and to put in special guides for the skip, the skip itself being rigged on a frame with shoes to fit the runners which were fixed to the shaft timbers. The late delivery of the large sinking pump, the permanent winding engine, and the hoisting cages were responsible for much of the difficulty that was experienced in sinking this shaft. The fissured rock continued down to a depth of 200ft., but after this depth the rock became more solid and the principal difficulty was with water. The shaft was used throughout the construction of the tunnel, and a large amount of the excavated material was hoisted through it thus leaving the portal lengths free for bringing in lining material, timber, etc.

BREAK-UP LENGTHS

The original scheme, as has already been mentioned, was for a bottom heading to be driven throughout the tunnel and for break-ups to be formed at intervals of 500ft., thus providing two additional working faces in each break-up. It was not found possible to adhere entirely to this programme and eventually break-ups were formed at distances of 250ft.

The face lengths were got out and turned without much difficulty 15ft. lengths being adopted with five drawing bars, namely, one crown bar, two 3rd bars and two 5th bars, but it had been decided to line the opening lengths of the tunnel with granite ashlar masonry, and the setting of this was with Chinese masons, dreadfully slow, and after three lengths had been turned with stone masonry lining at either face, it was abandoned, and brick lining used throughout the remainder of the tunnel.

The break-up lengths in the damp decomposed granite took a considerable time to get out owing to the constant streams of water which descended on the men, and to the heavy timbering which had to be resorted to. In the first break-up length in from the north face a 2ft. diameter Oregon pine crown bar was used, the remaining drawing bars being 20in. in diameter, and this timber was none too strong for the weight encountered, liner bars having to be inserted and propped off formation before the length could be turned.

By March, 1907, the labour force had been augmented by several experienced Chinese miners who had returned from Australia and the Federated Malay States. These men, recruited from the surrounding country, a very useful lot of hand-drillers, and the situation, as regarded labour, continued to improve, until at the completion of the tunnels on the railway it might be said that there were as fine a force of drillers as could be found anywhere outside of Europe or America.

HEADINGS

As the heading advanced further into the hill the rock continued to improve and though hard, compact, and needing a large amount of explosive to obtain progress, it was very much more easy to deal with than the badly fissured and decomposed rock met with in the first 700ft. at either end of the tunnel. The explosive found most suitable was blasting gelatine; the amount used per foot of heading driven varied, in some parts amounting to as much as 30lb. per foot but the general average might be taken at 8lb. per foot.

In the break-up lengths, where drawing-bars were necessary, a top heading were driven at either face of the break-up and, of course, two sets of bars lost at each junction length having to be built in, but this only occurred in the junction lengths in the first 800ft. from the north end of the tunnel, the remainder of the tunnel, being in sufficiently light ground where timbering was necessary, to permit of the taking out of the bars at the junction lengths. The tunnel ribs were made of three 3in. thicknesses of Borneo hardwood, the laggings being of Oregon pine 6in. by 2in.

TRANSPORT

The transport of plant and materials was a matter of considerable difficulty as regards the north face, but at the south face a metre gauge line, some two miles in length, connecting the main store's depot at



KOWLOON-CANTON RAILWAY.—Taipo Tunnel, South Face, July 5, 1908.



KOWLOON-CANTON RAILWAY.—View showing slips and masonry of outside length, Taipo Tunnel, South Face, Oct., 1908.



KOWLOON-CANTON RAILWAY.—Another view showing slips and masonry of outside length, Taipo Tunnel, South Face, Oct., 1908.

Taikoksui with the south face, was completed before the end of 1906. Stores and material for the north face were sent round by sea in junks or lighters towed by steam launches to a store's dépôt on tide cove, an inlet of Mirs' Bay, a distance of forty-five miles by sea; from this point they were transhipped into shallow draught boats and conveyed up a shallow river to a point two miles from the north face of the tunnel from which a metre gauge railway was laid to the tunnel. Delays, owing to launches being held up by bad weather on the stretch of coast between the entrance to Hongkong harbour and Mirs' Bay, were frequent, proved a considerable handicap, and were the source of expense.



KOWLOON-CANTON RAILWAY.—Taipo Tunnel, South Face.

PLANT

The air-compressing plant employed consisted of six Schram-Harker direct-acting steam-driven air-compressors (three at each face of the tunnel) cylinders 18in. diameter and 24in. stroke. The tunnel was lighted throughout by electricity and the lighting plant consisted of four sets of Siemens direct-acting, 14 kilowatt dynamos 100/133 amperes, 100/120 volts, the engines being single cylinder, manufactured by Browett, Lindley & Co. for a speed of 600 revolutions per minute. Arc lamps were employed in the approach cuttings and yards at either face of the tunnel, and the headings and tunnel generally were lighted with ordinary incandescent 16 c.p. lamps. The power plant consisted of a battery of three Lancashire boilers at each 24ft. x 6ft. diameter manufactured by Ruston, Proctor & Co., and at each face there was a steel smoke-stack 100ft. in height with an internal diameter of 5ft.

The drilling machines employed were by the same makers as the compressors with 3½-in. cylinders, and were mounted on columns with horizontal arms, four machines generally being used on the heading driving. It was not found economical as a rule to use the machine drills on the enlargement, and the headings having been driven, the enlarging was done chiefly by hand labour.

The tunnel was completed the end of 1909.

OTHER TUNNELS ON THE KOWLOON-CANTON RAILWAY

Tunnel No. 1, 150ft. in length, was a short tunnel through a narrow neck between two hills and was constructed by two Italians working as sub-contractors for Messrs. Leigh and Orange who had contracted for a length of two and a half miles at the Kowloon end of the railway. It was in red earth or decomposed granite with a few boulders and presented no particular difficulty.

Tunnel No. 3.—329 feet in length is through a rocky spur on the coast section between Shatin and Taipo and is on a five-degree curve, the material is hard rock throughout. A top heading was first driven and this enlarged by hand drilling and blasting and taken down to the level of the springing of the arch when skew-backs were formed in the rock and a brick arching five rings thick turned, the bottom portion being drilled and blasted out afterwards. The sides of the tunnel below the arch were trimmed down and left unprotected, the rock being sufficiently sound. The damage caused to the completed brick arching by the blasting of the lower portion was comparatively slight, and was easily repaired with cement plaster wherever the surface of the brick-work was chipped broken.

Tunnel No. 4, 180ft. in length, was also on a five-degree curve through a spur on the coast section. The upper portion was in an altered decomposed granite, and drawing bars were required throughout its length, one set only being used and drawn through from one face to the other. A top heading was first driven and after two lengths at the north face had been taken out to full section and turned, it was found possible to get skew-backs in hard rock and the arching which consisted of six rings of brick-work was turned and the remainder of the tunnel finished in the same way as No. 3.

Tunnel No. 5.—*Taipo Tunnel*, 923 feet in length on the straight, proved a very heavy piece of work. The interior of the hill was hard solid granite, but at each face there was a bed of soft decomposed granite interspersed with veins of a soft black greasy substance, lying at an angle on the face of the rock, and at the south face this was affected by the heavy rains of the monsoon season, and gave a great deal of trouble.

The approach cuttings were begun during 1907, and at an early stage the south approach showed signs of giving trouble. The spring of 1908 was very wet, and several small slips took place in February and March; early in April the face of the cutting was shored up with heavy timber and an attempt made to get in a length, a top heading was driven 24ft. into the hill and two crown bars were propped in position, when, after two days of incessant and heavy rain, the bottom of the cutting face bulged outwards breaking the sheeting, and letting in the top; the cills, of which there were four, were of 18in. square Oregon pine timber racked back to the sides of the cutting and these were sheared through clean close to puncheons with which they were propped. The cause of this slip was a large seam of greasy black substance which had become affected by the heavy rain and caused the bottom of the cutting face to slide and bulge thus bringing in the top. More slips followed and the cutting became a regular sea of mud with masses of enormous boulders embedded in it. April and May, 1908, were very wet months, and several extremely heavy downpours took place (five and a half inches being recorded in one instance). All efforts to stop the flow of mud from the face failed as there was no holding ground for the long struts used, the weight from the face causing the ends of these to plough their way along the floor of the cutting. In March a five-ton steam derrick crane with a 50ft. jib was erected on one slope of the cutting close up to the face, and was used for removing boulders and also for handling the heavy timber in use. Towards the end of May when but little progress had been made except in clearing semi-liquid mud and boulders, the author decided to again try and box in the face of the cutting, and the following plan was adopted, which eventually proved successful: Taking advantage of a slight interval of fine weather a space was cleared in the floor of cutting as close up to the face as it was possible to get, and a solid block of rubble masonry in cement measuring 15ft. wide by 20ft. long by 15ft. high was erected; large boulders were picked up by the derrick crane and were set in place and surrounded by cement concrete, the resulting mass being a solid mass of masonry weighing over 300 tons. In order to facilitate the removal of this mass of masonry when its purpose was accomplished hollow bamboos were built in, and when after the completion of the tunnel it was desired to remove the block, charges of dynamite were inserted and fired, and the mass shaken so thoroughly that with the help of the crane no difficulty was experienced in removing it.

As soon as the block of masonry was completed a line of sheet piling was driven across the bottom of the face and along the slopes of the cutting at such a distance that there was room for a retaining wall to be built between the outside of the timber and the edge of the cutting; the lines of sheeting piles were then strongly strutted off the masonry block and the face made good before any further excavation was done in the bottom of the cutting. The mud and boulders in the bottom of the cutting were then removed, a deep grip cut at one side of the cutting and timbered to drain off the water, and an outside length of the tunnel with wing retaining walls



KOWLOON-CANTON RAILWAY.—Taipo Tunnel. View showing timbering.

built as soon as possible. The sheeting piles at the face were then bored through and cut out carefully one by one to a size sufficient to allow of timber being got in for a bottom heading, and a boxed heading close polled all round was carefully driven, this work being performed by English tunnel foremen, of whom there were at that time four employed on the tunnel; as the heading progressed into the hill large quantities of water were discharged from the surrounding ground, and by the beginning of November 1908 the drainage of the hill-side had progressed so far that it

was considered safe to make a further attempt to get out the face length, a top heading was therefore driven from the face, a board at a time being cut through and the ground beyond it made good before any more of it was exposed and a full set of drawing bars were got in, two crown bars being used; two fourth bars and two sixth bars in addition constituted the set. The top of the length was taken down to cill level, one cill only being used, and from this point downwards closely timbered trenches were taken out for the side walls; the original face, except that taken out for the bottom heading and the side-walls, being still left strutted on to the outside length and masonry block, a good deal of face weight was thus avoided. The same method was adopted for the following lengths until the ground got better and the danger of weight from the face had disappeared, the dumping left was then removed. In the first three lengths in from the portal short lengths of 9ft. and 12ft. only were taken out and the brick lining was eight rings thick.

NORTH FACE.

At the north face rock was met with early and the timbering, generally, was not of an extensive character, though even here bands of decomposed material occurred and the rock required careful watching. A small top heading was driven through to a point over the bottom heading coming from the south, and a breakdown was then formed providing two additional working faces. When the solid rock was reached the same method was employed as in tunnels Nos. 3 and 4; the top heading was enlarged to full section down to the springing of the arch and skew-backs formed in the rock, the ribs were then set and the arching, which varied in thickness of from four to five rings of brick-work, turned. The remaining bench was then drilled, and blasted, the working face of the bench being generally some three or four lengths behind the arching. In the rock at the north face of the tunnel a piece-work contract was let to an Italian miner, but at the south

face each length had to be taken on its merits and piece-work contracts or bonuses given to the tunnel gangs, according to the material met with. At this tunnel, as at the Beacon Hill Tunnel, a complete system of time-keeping was established early in the work, and the time of all piece-work men and shift gangs was carefully checked. An English time-keeper, with experience on contract work in England, was brought out early in 1906 for the Beacon Hill Tunnel, and the system once established, was extended throughout the line, Indians and Chinese being trained for the purpose.

The staff employed on the construction of the British section consisted of Mr. G. W. Eves, chief resident engineer, with executive charge of the construction work to the south of the Beacon Hill Tunnel, which charge in 1908 was handed over to Mr. R. Baker, assistant engineer, who then became district engineer for the reclamation in Kowloon Bay, and the work south of the Beacon Hill Tunnel. The author was district engineer with executive charge of the northern portion of the British section, which, in 1906 and 1907, included the Beacon Hill Tunnel, during which period all the shafts were sunk, the machinery installed, some 2,000ft. of heaving driven and a considerable amount of widening done in the heavy ground at either face of the tunnel. Messrs. F. W. Valpy and J. C. Steen, assistant engineers, on the latter of whose subdivision tunnels Nos. 3 and 4 were situated, Mr. F. Southey, assistant engineer, and Mr. E. J. Richards. At the end of 1907 the Beacon Hill Tunnel was made a separate charge, Mr. W. Waite coming out from England and taking charge of the work as tunnel superintendent, under the chief resident engineer. On Mr. Waite's arrival the author proceeded to Taipo Mile 12 and the remainder of the railway to the frontier of the leased territories was constructed under his supervision, Taipo tunnel being in his direct charge. Mr. Eves was succeeded as chief engineer by the late Mr. E. S. Lindsey, who remained in charge of the railway during the first year of its being open to traffic.

GAS PRODUCER ENGINES IN A NEW FIELD

SELF-PROPELLED BARGES EQUIPPED WITH GAS PRODUCERS AND GAS ENGINES

A fleet of large self-propelled barges, fifteen in number, to ply between New Orleans and the Coal Fields of Northern Alabama is of peculiar interest in that they are the first craft of their kind in America to be propelled by Producer Gas Engines. They are also the first craft to bring coal from the Alabama fields to New Orleans wharves by water.



The first barge of a fleet of fifteen being built by the Alabama & New Orleans Transportation Company for transporting coal from Northern Alabama Coal Regions to New Orleans.

Alabama coal has heretofore been shipped to New Orleans by rail. A glance at a map of the Gulf States shows these barges follow almost as direct a route. Starting from the coal fields they will proceed down the Black Warrior, Warrior and Tombigbe Rivers, across Mobile Bay and proceed to New Orleans by way of Mississippi Sound, Lake Borgne, Lake Borgne Canal and the Mississippi River, a total distance of a little over 500 miles.

The barges are of steel construction, and are similar in design to those in use on the canals of Holland. Their measurements are as follows: Length, 240 ft., Width on deck, 32 ft., Width at bottom, 28 ft., Depth, sides, 8 ft., Depth, center, 8½ ft. Their capacity is 1,000 tons. Draft, when fully loaded, 7 ft. They are propelled by twin screws driven by twin engines and have a speed of approximately 7 miles an hour when fully loaded. The weight of each barge and equipment is close to 240 tons.

The screws are driven at 300 R. P. M. by two 75 H. P. Vertical Producer Gas Engines. Gas for the engine is furnished by a 150 H. P. Producer. The fuel used for the Producer is what has heretofore been a waste coke from the ovens of the Birmingham District and which consequently is secured at a very low price. This coke is practically pea size. It has a calorific value of about 11,000 B. T. U. and the consumption is approximately 1 lb. per horse power hour. Bunkers are provided to

hold about 15 tons of fuel. Each producer is equipped with scrubber gas tank, tar extractor and is fitted with water bottom.

While the main power plant is of primal interest the auxiliary power equipment of the barge also merits mention. This consists of a 9 H. P. Gasoline Engine, which drives a centrifugal pump handling the ballast and bilge water, a blower, an air compressor and a 5½ K. W. direct current generator. Current is used for electric lights throughout the boat, fans in cabins and engine room, a 3,200 candle-power search light and 5 H. P. Motor. The arc light is mounted on the roof of pilot house and galley, which are immediately over the engine room. The motor is for operating an anchor winch. The generator is so mounted that when the large engines are running it may be belt driven from one of them. A second 4" Centrifugal Pump is also installed to be driven by one of the large engines through friction wheel contact.

A decided advantage of the self-propelled barge for use in these waters is that they can negotiate the numerous locks on the Warriors and Tombigbe Rivers in much less time than if towed. Each lock can be passed in 20 minutes by these vessels, whereas more than an hour would be consumed by the towed fleet system.

The barges will make the trip from the Mine region to New Orleans in 72 hours and with all 15 vessels in service it is estimated that coal will be moved into New Orleans at the rate of 50,000 tons a month. Added revenue will be derived by the barges carrying freight on the return trip to the coal field.

The Alabama and New Orleans Transportation Company, of which John H. Bernhard is Vice-President and General Manager, control the Lake Borgne Canal which is the key to the route traversed by these barges, and it is to them that the new departure in Alabama coal transportation is due. All the barges are being built at the company's own ship yard, located at a point about 12 miles below New Orleans, where the canal empties into the Mississippi. The first barge was launched June 4th last. Others have now been launched—it being the company's plan to construct one a month until the fleet numbers fifteen vessels. All the power equipment for the barges—engines, gas producers, motors, generators, pumps, air compressors, etc., was designed and furnished by Fairbanks, Morse & Co.



Loading Naval Stores.

SAKHALIN OIL FIELDS, LIMITED

The first ordinary general meeting of this company was held in London in January, Mr. E. T. Boxall, the Chairman, presiding. In the course of his address the Chairman said that no time was lost in despatching a boring staff to the property as soon as the company was in a position to start business, but delay occurred in securing a vessel to convey the expedition to Sakhalin, owing to the tonnage in Vladivostock being very scarce at the time. The little steamer *Nachodka*, which was eventually secured, proved to be quite helpless in the weather she encountered after leaving Yokohama, and she finally had to return to Vladivostock, where she arrived on November 16, and where the machinery again had to be warehoused for the winter. The expedition subsequently left Vladivostock on February 11 and reached Tchaivo on April 3, where the Russian staff of workmen had been awaiting them since November. The first derrick was completed on May 26 and drilling was started on plot No. 479 at Boatissin. Then occurred the unfortunate incident which prevented work during practically the best part of the summer and explained how it was so little actual boring had been accomplished. As was stated at the statutory meeting, the Russian Government had the company's interests very much at heart and had shown their goodwill in several practical ways, one of which was to grant them five years instead of one in which to prove their claims. Unfortunately the department concerned omitted to inform the local Government mining engineer of this concession, and he, under the impression that the claims had been allowed to lapse, forbade the company's men to do any further work upon them. This occurred in June, and owing partly to delays and discussions between the mining engineer and the manager, but in a much greater measure to the inadequate means of communication (the nearest telegraph office being at Post Alexandrowsk, on the other side of the island), it was not until August that their St. Petersburg colleagues were apprised of what had occurred, and then it was some weeks before they could set the machinery in motion to have the Government mining engineer properly instructed by his department. Finally, operations were resumed in September, and a cable from Mr. George Thom, dated December 2, was received as follows: "Drilling night and day; total 304 ft. Advise where to fix second plant." This confirmed what the board had always maintained, that once a derrick was erected and the men were working under cover drilling could continue throughout the winter. They did not expect to strike oil at Boatissin before reaching a depth of at least 500 ft., which was the point at which the China Oil Company found oil, and they hoped soon to get a further cable from Mr. Thom announcing that he had got down to that depth and found oil. The conditions at Nutvo were different. Oil was met with at a much shallower depth, say at about 350 ft., but they did not know this at the time of Mr. Thom's departure from London, and he left with instructions to commence operations at Boatissin, as it was nearer his base where the machinery was stored and where the expedition was to be housed. They sustained yet another setback, also in consequence of the lack of communication. The letter by which the secretary notified the English staff that their contracts were renewed for a further year miscarried altogether, and the telegram by which the secretary informed Mr. Thom that the letters were on the way was so badly mutilated as to be unintelligible. The result was that two of the remaining four Englishmen, one having been dismissed in the meantime, threw up their jobs and returned home, and had actually left Vladivostock before they could be stopped. This reduced their English staff to two, Mr. Thom and one other, and it was greatly to their credit that they stuck to their posts when they were without news from headquarters and found themselves forsaken by their comrades. This, he was happy to say, exhausted the tale of their reverses, and he would now turn to the brighter side of the picture. It would have been seen that most of their troubles in the past were directly attributable to inadequate means of communication. He was glad to inform them, however, that following representations made to them by their St. Petersburg friends, the Government had expressed their intention of installing wireless telegraphy between Post Alexandrowsk and Tchaivo. If this installation of wireless telegraphy were carried out there would be direct telegraphic communication between London and Tchaivo. As would be seen from the directors' report, Sir Boverton Redwood, the eminent authority on petroleum, sent out at the directors' request an experienced member of his staff, Mr. Francis A. Holiday, to make a thorough examination of the property, to select sites for further drilling, and to advise them generally as to the best method to pursue for working the oilfields to the greatest advantage. He had to inform the shareholders that since the statutory meeting the company had obtained an important concession from the Sakhalin Oil, Coal, & Trading Co., the original owners of the property, and who still owned 154 other oil claims in the same districts. Convinced that oil was abundant throughout the district, and being anxious as shareholders for this company's success, which would at the same time enhance the value of their remaining claims, they had given this company a moving right of selection over the entire 204 claims. That was to say, they were not bound down to the identical fifty claims purchased. If they preferred any other claims that company would give them to this company in exchange for an equivalent number of those which they had had at present. Mr. Holiday arrived at Tchaivo in July and found all the works stopped by the Government engineer under the circumstances which he had related. However, Mr. Holiday made good use of his time during his three months' stay on the island, and although the time was not sufficient for him to visit all the districts, he was there long enough to be able to form a very high opinion of those he did survey. The shareholders had read Sir Boverton Redwood's conclusions from Mr. Holiday's notes, and he might add that the detailed report, of which they were in effect a brief summary, conveyed the fullest possible information respecting the general geological structure of the island, the specific topogra-

phical and geological features of the company's various properties, the causes of the non-success of the drilling carried out by others, and recommendations relative to the future work of a company. The document was a lengthy one, extending to more than forty pages of typewritten foolscap, and it would obviously be impossible for him to give at that meeting anything more than an idea of its comprehensive character. Moreover, much of the information which it contained was confidential, which it would not be in their interests to make public, but which was of the highest value for their guidance in the work before them. He must therefore ask them to be content with his three months' study of the properties firmly convinced that the areas over which the company had drilling rights were unquestionably oil bearing, and that with systematic development, judiciously carried out in the manner indicated in the report, and, with adequate capital, satisfactory result should be obtained. Moreover, Sir Boverton Redwood, having carefully studied the data furnished by Mr. Holiday, fully endorsed that gentleman's conclusions. All that they had to do, therefore, was to be patient, confident and persevering, avoiding the mistakes which had been made by others, conducting their exploratory operations in the light of the valuable experience and knowledge of the local conditions which they had already gained, and intelligently shaping their course in accordance with the further information which those operations would furnish. They were in no worse position than that of every pioneer organisation in an undeveloped oilfield, and he merely mentioned that fact in order that they might not be discouraged if their progress were not as rapid as they all naturally wished it to be. They must rest assured that the directors would spare no efforts to bring the properties to a dividend-paying stage of development at the earliest possible date, but their policy should be sure, if slow, and it was only by cautious procedure that the foundations of a permanently successful oilfield could be laid. If they found oil in commercial quantities, as they confidently hoped they would have a rich reward, for at no time in the history of the petroleum industry was an addition to the existing sources of supply in such an important geographical position more urgently needed than it was at present. They were justified in hoping, in fact, that Sakhalin would become one of the world's oil-producing centres. Their market was practically unlimited, imported oils being subject to heavy duties. They had, on the one hand, the whole of the Amur River Valley; in fact, he might say the whole of Siberia up to Lake Baikal, with no competitor nearer than Baku. Whole forests had been devastated in these districts in order to supply the railways and river steamers with wood fuel. On the other hand, they could compete in China on equal terms with other companies. The company's expenses had necessarily been heavy, as was inevitable in any enterprise carried out under pioneer conditions in a practically unpopulated country. They appeared at first sight to be out of all proportion to the results obtained, but if they took into consideration the circumstances and events which it was impossible to foresee, and which hampered their operations, he thought the shareholders must arrive at the conclusion that the company's prospects were excellent. All that was required to realise them was adequate working capital. Turning to home matters, he said that in March the directors concluded a satisfactory arrangement with the vendors whereby they agree to accept 10,000 fully-paid shares of this company in lieu of the £10,000 cash, the balance of the purchase consideration owing to them under the terms of the agreement in consideration of the removal of certain restrictions imposed on the vendors' and promoters' shares. He expressed regret that Sir Richard Awdry, their late Chairman, had been compelled owing to failing health to resign his seat on the board, and that Lord French had also been obliged to resign owing to his other affairs in China preventing his devoting the time to this company's affairs that he considered advisable, but Lord French had offered to conduct any negotiations which this company might wish him to undertake in Peking or the East generally.

OPENING OF GOLD FIELDS IN SIBERIA

According to information received from St. Petersburg, a public tender was held November 30, 1913, at the Mining Department. The allotments formerly belonging to the Northeastern Siberian Co., on the river Volchya in the Chukotsk Peninsula, were allotted to a mining group represented by Baron Drisen.

These gold fields, which have not been worked since 1907, regardless of the fact that the deposit is said to contain 1536 grams of gold in 1 ton of gravel, will be reopened. It is reported that early in the spring of 1914 a large body of workmen, several mining engineers, etc., will proceed to the region mentioned and begin preparations to open up the mines on a large scale.

CHINESE COAL FOR JAPAN

The high price of coal ruling lately has led to the import of Fushun and Chinese coal into Japan. Lately the Osaka Gas Company concluded a contract with the Shosho Yoko, a Japanese firm at Tientsin, sole agents for the sale of Kaiping coal in Japan (including Korea), for a large quantity of the Chinese coal. Almost every steamer from Dairen has been bringing 3,000 or 4,000 tons of coal to Osaka. This contract is only a preliminary arrangement, and the purchase of another 10,000 tons will be contracted for shortly. The daily output of Kaiping coal is about 8,000 tons and when the Lin-si mine is opened, the output will increase to over 10,000 tons. At present most of the Kaiping coal is consumed in and about Tientsin, the remainder being shipped to the South Sea Islands through Shanghai. It is expected that 350,000 tons will be imported into Japan next year, about 200,000 tons have been contracted for by the Imperial Iron Foundry. No. 1 dust coal is to be imported into Osaka by the Mitsui Bussan shortly.

FAR EASTERN RAILWAYS

CHINA

Fukien Railway.—The Ministry of Communications has sent deputies to Fukien to take over the property of the Fukien Railway Company. The construction of this line was begun in the 31st year of the reign of the late Emperor, but less than twenty miles of line has been completed at a cost of two million dollars. The Company requested the Government to nationalise the line.

Chefoo-Weihhsien Line.—It is reported that the Chinese Government has, definitely decided to take in hand the building of the Chefoo-Weihhsien railway and all who regard this as a vital necessity to the port of Chefoo are anxious that both railway and breakwater should be undertaken at one and the same time. They are the two natural parts of one scheme and with these two developments the future of Chefoo is assured.

The Chekiang Railway.—A correspondent writes from Hangchow on March 1:—To-day a meeting of the shareholders in the Chekiang Railway was held to discuss the question of handing over the railway to the Government, as has been done in the case of the Kiangsu portion. Nothing definite was settled at the meeting beyond the appointment of two deputies who are to go to Peking where they will discuss terms and conditions with the Minister of Communications.

The Lung-Tsing-U-Hai Line.—A correspondent writes from Chengchow, Honan:—The land about here, outside the city and between it and the railway is all being bought up by investors. We gave 30,000 cash a mow for what we bought six years ago, but now the same land is selling for 250,000 cash. Native buildings are going up by the acre. The Pien-lo railway has bought a big tract of land and is now building dwelling houses on it for foreign employees. They tell me one hundred new men, French and Belgians, are expected within a month's time.

Pukow-Sinyangchow Railway.—A flying survey with levels was carried through in the autumn of last year from Wu I to Sinyangchow, with a foreign staff of only two engineers assisted by Chinese surveyors. The final location and survey have now been completed by Mr. C. E. Stewart up to 76 miles from Wu I, and the marking out of the land required is now in progress at the East end, and land purchase will commence at once. Mr. Louis Broome, District Engineer at Sinyangchow takes charge of that end of the line and goes out at once to commence the final survey and location at the West end, where it is hoped very soon to commence buying land for the junction with the Ching-Han Railway, and East thereof. Mr. Ferguson, formerly of the Tientsin-Pukow Railway, has joined Mr. Bourne's staff as District Engineer with residence at Luchowfu, and will go out as soon as conditions permit. A few other Engineers are now arriving from various parts of the world and all the preliminary work will soon be well in hand. Wu I is unfortunate in possessing very little accommodation of any sort; but temporary quarters have been found for the present and until the decision as to the details of junction with the Tientsin-Pukow Railway enable the terminal land to be bought and proper quarters erected.

Railway Work in Honan.—A Kaifeng correspondent writes:—Work on the railway connecting Kaifeng with the Tientsin-Pukow railway is proceeding apace, and we hear that

the line between here and Hsuechow is to be completed in about a year. The line is following somewhat the south bank of the old Yellow River. For cost of construction and purchase of land this may be economical, but it means that for nearly two hundred miles it is carried through a sparsely populated and rather barren country, while to have taken a more southern course along the main trade route with Kiangsu would have tapped several large cities and an agricultural and fruit growing country than which there is no better.

Canton-Hankow Railway.—It is expected that shortly embankment work will be in full swing on the three sections of the Hankow-Canton railway between Wuchang and Changsha. The opposition met with from landowners who were unwilling to sell their land at a fair price to the railway has somewhat decreased of late in the vicinity of Wuchang, and a five-mile length of embankment is under construction, while tenders are being received for further lengths.

The construction of the railway between Wuchang and Changsha is being carried out in three sections, Wuchang to Sinti, Sinti to Yochow and Yochow to Changsha. The line is already under construction at Yochow and will meet the Wuchang section about midway. The chief difficulty being experienced is through the disappearance of the pegs which are placed every hundred feet along the route of the railway, these pegs being taken out by the country folk in the hope of getting the railway diverted.

The survey of the Changsha section has been completed, and the purchase of the land is to start shortly, after which work will be commenced. The construction work in Hunan is not to be pushed on just yet. Ten new foreign assistant engineers have been engaged, six of whom have arrived, the others being expected shortly. The new engineers are to supervise the construction work on the spot.

It was at first estimated that through service to Canton would be completed in a matter of three years, but engineers, after surveying the conditions of the country at the Kwangtung border increase the time to about five years, a good deal of tunnelling and cutting having to be done. Notwithstanding that Hunan is a great cereal province and is rich in minerals, it is not expected that returns sufficient to meet even the interest on the loans will be obtained from the railway till the whole length is complete and through service started.

The staff of the railway, who have offices at present in Hankow, may possibly move over to Wuchang after the coming summer, for the building of the railway premises outside the Tung Hsiang gate is under way. When these are completed the railway will be able to save something like \$1,000 per month on rent.

Shanghai-Nanking Railway.—The following figures of traffic returns (approximately) for the week ended January 24 are issued by the Shanghai-Nanking Railway:—

Year.	Passengers.	Goods and Sundries	Total for the week.
1914....	\$ 64,893	\$ 9,710	\$ 74,603
1913....	50,314	10,509	60,823
Increase.	14,579	—	13,780
Decrease	—	799	—

For thirty weeks.

Year.	Passengers.	Goods and Sundries	Total
1914....	\$ 1,418,126	\$ 204,860	\$ 1,712,986

1913....	1,206,239	279,080	1,485,319
Increase.	211,887	15,780	227,667
Decrease	—	—	—

Week ended January 31.

For the week			
Year.	Passengers.	Goods and Sundries.	Total for the week.
	\$	\$	\$
1914....	38,629	4,414	43,043
1913....	55,914	7,830	63,744
Increase	—	—	—
Decrease	17,285	3,416	20,701

For thirty-one weeks.

Year.	Passengers.	Goods and Sundries	Total
	\$	\$	\$
1914....	1,456,755	290,274	1,756,029
1913....	1,262,153	286,910	1,549,063
Increase.	194,602	12,364	206,966
Decrease	—	—	—

* Only three trains were run on the 26th—Chinese New Year day.

Week ended February 7.

Year.	Passengers.	Goods and Sundries	Total for the week.
	\$	\$	\$
1914....	52,807	9,327	62,134
1913....	41,072	3,163	44,235
Increase.	11,735	6,164	17,899
Decrease	—	—	—

For thirty-two weeks.

Year.	Passengers.	Goods and Sundries.	Total.
	\$	\$	\$
1914....	1,509,562	308,601	1,818,163
1913....	1,303,225	290,073	1,593,298
Increase.	206,337	18,528	224,865
Decrease	—	—	—

Week ended February 14.

Year.	Passengers.	Goods and Sundries.	Total for the week.
	\$	\$	\$
1914....	53,149	10,956	64,105
1913....	46,732	6,514	53,246
Increase.	6,417	4,442	10,859
Decrease	—	—	—

For thirty-three weeks.

Year.	Passengers.	Goods and Sundries	Total
	\$	\$	\$
1914....	1,562,711	319,557	1,882,268
1913....	1,349,957	296,587	1,646,544
Increase.	212,754	22,970	235,724
Decrease	—	—	—

Week ended February 21.

Year.	Passengers.	Goods & Sundries.	Total for the week.
	\$	\$	\$
1914....	41,641	9,129	50,770
1913....	48,656	9,974	58,630
Increase.	—	—	—
Decrease.	7,015	845	7,860

For thirty-four weeks.

Year.	Passengers.	Goods & Sundries.	Total.
	\$	\$	\$
1914....	1,604,352	328,686	1,933,038
1913....	1,398,613	306,561	1,705,174
Increase	205,739	22,125	227,864
Decrease	—	—	—

Week ended February 28.

Year.	Passengers.	Goods & Sundries.	Total for the week.
	\$	\$	\$
1914....	50,339	12,716	63,055
1913....	55,235	11,703	66,938
Increase.	—	1,013	—
Decrease	4,896	—	3,883

For thirty-five weeks.

Year.	Passen- gers.	Goods & Sundries.	Total
	\$	\$	\$
1914....	1,654,691	341,402	1,996,093
1913....	1,453,848	318,264	1,772,112
Increase.	200,843	23,138	223,981
Decrease	—	—	—

Week ended March 7.

Year.	Passen- gers.	Goods & Sundries.	Total for the week.
	\$	\$	\$
1914....	53,130	11,570	64,700
1913....	49,627	10,614	60,241
Increase.	3,503	956	4,459
Decrease	—	—	—

For thirty-six weeks.

Year.	Passen- gers.	Goods & Sundries.	Total
	\$	\$	\$
1914....	1,707,821	352,972	2,060,793
1913....	1,503,475	328,878	1,832,353
Increase.	204,346	24,094	228,440
Decrease	—	—	—

JAPAN

Japanese State Lines.—Expenditure for the coming fiscal year on Imperial Government Railways is estimated at over 8,920,000 yen. The principal works are as follows:—

Changes of the trunk line of Tokaido	yen
and increase of lines	450,000
Double-track for Yokosuka	300,000
Construction of lines between Ueno and Central Station in the city (over)	970,000
Double-track for Kyushu line	700,000
Double-track and improvement for Hokkaido Railway	856,110
Construction of cars (over)	6,020,000

Long Tunnel Finished.—An Osaka report says that the Ikomayama tunnel on the Osaka Electric Railway has been completed. The length is 11,088 *shaku* and work was commenced in July, 1911 by the Ohayashi-gumi, contractors of Osaka, at a cost of 2,500,000 yen. Thirty-four men lost their lives in the work.

New Tokyo Central Station.—A Tokyo paper reports that the interior decoration of the Central Railway Station, the entire outward form of which was completed a few weeks ago, is now being pushed on under the supervision of Dr. Tatsuno. The decorative work inside will combine many features representing the highest art of the leading artists of Japan.

Entering the front main entrance, one finds himself in a spacious hall of 30 *tsubo* paved with gray marble and with no ceiling except the lofty roof. The ceiling has at its four corner stained glass-windows representing the deified forms of a dragon, a tiger, a bird, and a tortoise. The walls will be decorated with mural paintings based on ancient Japanese myths. This work will shortly be begun under the direction of Mr. Kiyoteru Kuroda and Mr. Eisaku Wada. The waiting rooms for passengers take parts of the central hall.

There is a waiting room of 30 *tsubo* at either side of the central hall, connected by a corridor. These side halls will be placed at the disposal of the Imperial suite when the Emperor passes through the station. The floors of those rooms are mosaic work in wood. The walls of the right side room are covered with silk cloth with designs of bamboo plants, while silk wall cloth of designs of plum flowers has been chosen for the walls of the other side room. The ceilings of these rooms are worked in a checker-board design with *hinoki*.

The Imperial room is connected to the left side room by a corridor with marble floor. The room is designed in the shape of an irregular hexagon. The mosaic floor is also the choice for this hall. Elaborate designs of phoenix and of chrysanthemum flowers are inlaid in the clopboards of *hinoki*. The walls are covered with silk cloth with patterns of pine foliage. The ceiling is finished in highly wrought *hinoki*.

A large cloisonné work representing a sunrise is hung on the wall above the mantel-piece. The design was drawn by Mr. Sobun of Kyoto, and made by the Ando factory of the same city, devoting half a year to the work. The chairs, tables, and other articles of furniture will be decorated in novel designs combining Japanese taste and ideal of the Secessionists School. The curtains, alvaperies and portieres will be all stamped with the highest and best of Japanese workmanship.

Traffic Returns.—The cargo handled by the different lines of the Japanese State Railways during January last comes to a total tonnage of 2,503,210 tons, details being as given below:—

	Tonnage of Cargo handled during Jan. 1914. Tons.	Comparison with Jan. 1913. Tons.
Lines in Honshu....	1,515,451	+ 987,759
Lines in Kyushu....	987,759	+ 25,675

Receipts for the same time are as follows:—

	Receipts Comparison with Jan. 1914. Yen.	Jan. 1913. Yen.
Lines in Honshu....	2,887,607	+ 82,534
Lines in Kyushu....	856,848	+ 46,010

This year, as a matter of fact, an appreciation by more than 100,000 tons has been witnessed in cargo handled by different railway lines, but compared with the same time last year the rate of progress shows a decrease. Furthermore a comparison with the record for December last will show the falling-off amounts to more than 28,000 tons.

Of the principal goods handled by the different railway lines rice and coal witnessed a heavy appreciation, while cotton textiles, knitted goods, and charcoal, which see more or less increase at this time of year practically remained stationary.

Companies

Railway Extension in Japan.—The railway lines included in the set program will be wellnigh completed during the fiscal year 1914-15. Therefore the Railway Board is now planning a scheme for the next fiscal year. As a result of the administrative readjustment, however, the construction expenses for the year have been much reduced. That will, it is anticipated, induce the Board to limit the lines to be undertaken during the year to the following lines:—

Sections.	Mileage.
Otoi, Otofuku-Wakanai (Hokkaido)....	87
Runnoye-Mashige (Hokkaido)	9
Nobechi-Ominato (Aomori).....	38
Omagari-Morioka (Akita and Iwate) ..	47
Yamagata-Sagawa via Sagayo and Yachi (Yamagata)	19
Kamabe-Kodzokuri (Aomori)	17
Katsuta-Omiya (Ibaraki).....	13
Yamada-Kochi-Susaki (Kochi)	13
Tottori-Chidzu (Tottori)	20
Yakago-Neame (Tottori)	19

The proposed lines will come to a total mileage of 304 miles, and surveying will be started in the course of the present year.

Kyushu Lines.—The railway east of Miyakonjo on the Miyazaki line, Kyushu, extending some two miles, has been completed and was to be opened to traffic on February 11.

A station has been established at Kabayama, Mitsumata-mura.

Atami Railway.—The Government has abandoned the project of constructing a railway line at Atami, which was included in the Budget for 1914.

MANCHURIA

South Manchuria Railway.—The total traffic receipts of the S. M. R. Co., for the month of January amounted to Y2,143,433, being a decrease by Y564,571 from the corresponding month of last year. It must be borne in mind that the Chinese New Year holidays, preceded by the year end holidays, which extend over at least eight days, occurred in February last year whilst they happened to run this year from the 23rd to the 30th of January. This intervention of the Chinese holidays accounts for the decrease.

There has been a marked increase in the aggregate traffic receipts of the Railway since the beginning of the current fiscal year in April over those for the corresponding period of the preceding fiscal year. Up to last January the Railway received Y18,273,212, as against Y15,486,497 for the corresponding ten months of the preceding fiscal year.

During last February the S. M. Railway received as the traffic earnings the total of Y. 2,083,550, being an increase by Y. 300,161 on the corresponding month of last year. The aggregate receipts since last April reached Y. 20,197,678, being an increase by Y. 2,857,738 on the corresponding period of last year.

Light Rail Line to Fuchou.—The surveys of the proposed light rail line to Fuchou have been finished by experts of the South Manchuria Railway Company. The terminus at the Fuchou end is Wuhutzu, but opinions were divided as to which should be other terminus on the S. M. Railway—Wafangtien or Pulantien. The choice was settled in favour of the latter. It was thought more convenient to have the major part of the line pass through the Leased Territory and only a small portion run through the neutral zone.

SIAM

Prai-Bangkok Connection.—The following is an extract from a speech by the King of Siam on the occasion of his birthday on the 2nd inst. It specifically and authoritatively announces the intention of the Siamese Government to construct the branch which will connect the Kedah-Perlis extension of the F.M.S. Railway with the Southern Siamese east coast main line by a link running from the Kedah boundary through Siamese territory to Octapa the Singora junction:—

"The construction of the Southern Railway Line is being continually proceeded with. On the 1st January of the present year three sections will be open to traffic namely: from Hua Hin to Vang Phong in the province of Pranburi, from Singora to the junction at Uh Taphao, and from Trang to Thung Song in the province of Nagara Sridhamaraj. It has been decided to construct a line branching from Uh Taphao to join with the British railway line on the frontier of Kedah, and this when completed, will enable the exchange of mails between our country and Europe to be accelerated by several days."

MALAYA

The Kedah Railway.—Two Federated Malay States surveyors are now examining the route for the continuation of the Kedah Railway extension into Perlis territory and thence to the Siamese boundary to meet the Siamese Southern Railway. It is proposed to make the extension from Ootapao, the junction for Siggora.

Trans-Peninsula Line.—The *Pinang Gazette* understands that the Federated Malay States Government at present have under their consideration an important scheme for extending the F. M. S. Railway system by a trans-Peninsula line in addition to the Ootapa-Perlis link. The proposals now being considered are for a line which will start at a point in Kelantan, south of Kota Bahru, and will strike due west, through Upper Perak, connecting with the Prai-Taiping line.

It is, of course, well known that both in Upper Perak and in Kelantan there are big areas of rich mining and agricultural lands the development of which is held back through lack of proper communications. A railway line, such as is projected, would open up a most promising district of the Peninsula: it is said that the idea has been favourably received in influential quarters and it is likely to be brought up at an early meeting of the Federal Council.

GENERAL

Irkutsk-Bodaibe Line.—The Governor-General of Irkutsk has forwarded to the Ministry of Finance his views on the question of the construction of Irkutsk-Bodaibe Railway. In the capacity of an applicant for the concession to construct this line of more than a thousand versts appears the Lena Gold Mining Company. In his report the Governor-General points out that with regard to the spacious basin of the Lena, the immediate problem of the State must be consolidation of the gold-mining industry to which end it is indispensable to provide the region with proper means of communication. From this standpoint, however, all projects which look only to the connection of the Siberian Railway with the wharves of the Lena River can not be regarded as satisfying the fundamental needs of the region. Thus, the sole adequate solution of the question is the connection of the Lena basin with the Siberian trunkline by an unbroken railway route. At the same time the Governor categorically declares himself against conferring extraordinary privileges upon private entrepreneurs, more especially the right to impose an increased tariff under which the entire Lena region would be surrendered to the economic exploitation of such speculators.

British North Borneo Railway.—In the course of his address at the 62nd half yearly meeting of the British North Borneo Co., the Chairman, Sir West Ridgeway, said:—

The reconstruction of the railway looms large in our programme. Under the able supervision and control of our general manager, Mr. Watson, satisfactory progress is being made day by day, and we are approaching the time when the shipment of rolling stock, bridge material, &c., &c., will cease. As you are aware, it is our intention to substitute for the old 30-lb. rails of double that weight; and in this connection we have shipped 30 miles of the heavier rail, and shall ship a further 27, making 57 miles in all. That will provide the heavier rail for the section between Jesselton and Beaufort. The substitution of 60-lb. rails on the remaining distance from Beaufort up to Melalap—a matter, in round figures, of 60 miles—will have to be undertaken later on; nothing

definite has yet been settled. The cost of what is practically the entire reconstruction of our railway will be considerable. We have already expended some £112,000, and a further considerable sum will have to be spent before the railway has been entirely transformed from a pioneer into a permanent railway. As an instance of what we may expect as the result of this reconstruction, I am pleased to be able to tell you that during the first half of the current year the receipts have been at the rate of £23,000 per annum, which is more than £2,000 better than during the preceding year. Moreover, from cabled reports of receipts since the end of June last, we feel confident that the revenue derived from that source during 1913 will exceed the revenue of 1912 by at least £3,000.

The Amur Railway.—The Blagovestchensk Labor Bureau reports that 20,573 workmen were brought out from European Russia under contract in 1912 to work on the central section of the Amur Railroad. Their wages amounted to \$2,181,025. In addition to these men, about 2,560 laborers not under contract were employed during the second part of the season. The total expenditure for labor on the central section of the railroad in 1912 was \$2,589,000.

By the time the Amur Railroad is completed in 1916, it is expected that the large coal deposits which exist along the line will be developed sufficiently to furnish the road's fuel supply. The chief deposits are near Malinovka, 8 miles from the railway, between the Tukan and Kivda Rivers. An area of about 1 square mile has been examined, and the indications are that the deposits are regular and cover a large territory. The coal bed averages 7 feet in thickness and lies under 35 to 42 feet of gray clay. The outcrops are on an elevation and not subject to washouts. Working conditions are favorable, and according to the preliminary estimates the coal can be mined at a cost of \$1.25 to \$1.40 per ton. Coal has also been found on other sections of the railway.

New Railway Freight Tax at Harbin.—The administration of the Chinese Eastern Railway introduced in October last a so-called pood tax on all freight matter received at, or shipped from Harbin. This tax, which is to be collected on each pood (36.1128 pounds) of freight handled by the railway at Harbin, is to remain in force for a period of 10 years, and it is estimated that during this time the revenue will amount to approximately \$625,000. This money will be expended chiefly for improving the streets in Harbin, although a certain portion will be used for other municipal improvement.

COMPANIES

China Provident Loan and Mortgage Co., Ltd.—The report of this Company states that the gross earnings for the past year amount to \$136,111.77 and after deducting interest paid and all expenses, remuneration to General Managers, consulting committee's and auditors' fees, and adding forfeited dividends, \$2,535.20, and the balance of \$2,774.55 brought forward from last year's account, there remains a sum of \$98,332.76, which it was recommended be appropriated as follows, viz:—

To place to reserve fund	\$ 5,000.00
To pay a dividend of 7 per cent.	
or 70 cents per share	87,500.00
To carry forward of the credit	
of next year's account	5,832.76

Kowloon Land and Building Co., Ltd.—The twenty-fifth report of the Board of Directors states that the balance of profit and loss account for the year including \$806.45 balance brought forward from last account, after writing off all charges and expenses,

amounts to \$19,172.69. The Directors recommended that a dividend of \$2.80 per share be paid, which, after providing for directors' and auditor's fees, would leave a balance of \$1,822.69 to be carried forward to the credit of a new profit and loss account.

Taku Tug and Lighter Co., Ltd.—The report of the directors for the year ended December 31, 1913, stated that the result of the year's working showed a balance at general working account of \$217,948.09. This enabled the directors to pay to the shareholders two interim dividends of 2 per cent. each in August and November last, and after providing for general expenses, etc., there was a balance of \$150,514.38. This available balance the directors recommended should be disposed of as follows, viz:—

By payment of directors' and auditors' fees	\$ 5,000.00
By payment to depreciation sinking fund	60,047.81
By payment of a final dividend of 4 per cent	73,714.28
By payment to equalization of dividends account	10,000.00
By carrying forward to 1914	1,752.29
	<hr/> \$150,514.38

Hongkong and Kowloon Wharf and Godown Co., Limited.—The report for the year ended 31st December, 1913, stated that the profit on working was \$503,523.06, as compared with \$386,011.94 in 1912.

The balance at credit of profit and loss account, including \$21,699.74 brought forward from last year, and after deducting directors, and auditors' fees, and paying for all interest and repairs, amounted to \$440,402.80, which it was proposed to appropriate as follows:—

To pay a dividend of 7 per cent.	
from working profits	\$210,000.00
To write off Launches	4,757.57
" " Lighters	36,297.88
" " Machinery	18,538.76
" " Kowloon Wharves	36,102.06
" " West Point Wharf	454.61
" " Railways and Rolling	
Stock	9,361.44
To Transfer to Reserve Fund	100,000.00
To carry forward to new account	24,890.48
	<hr/> \$440,402.80

Shanghai Horse Bazaar Co., Ltd.—The report of the directors for the year ended December 31, 1913, stated that the balance at credit of profit and loss account was Tls. 27,306.80, which the directors recommended the shareholders to deal with as follows:—

	Tls.
A Dividend of 8 per cent.	21,600.00
Carry forward to a new profit and loss account	5,706.80
	<hr/> Tls. 27,306.80

Central Stores, Ltd.—The report of the directors for the year ended December, 31, 1913, stated that the net profit for the period amounted to \$101,873.77, which less directors', auditors' and trustees' fees \$2,684.92, interest on debentures \$27,397.20, interest on over draft, etc., \$432.67, reduction of capital expenses \$1,489.86 and reserve for doubtful debts \$5,000 amounted to \$64,869.12.

This sum the directors propose to appropriate as follows:—To pay a dividend of 10 per cent. on 34,950 ordinary shares, which will absorb \$26,218.50; manager's bonus, (5 per cent. on amount of dividend \$1,310.90; to place to reserve of the following accounts:—building account \$10,000.00, furniture account \$3,000.00, and general reserve \$15,000.00; and carry forward \$9,339.72.

Anglo-German Brewery Co., Ltd. (Shanghai).—The report of the directors for the year ended December 31, 1913, contains the following:—

The balance to credit of profit and loss account, including \$5,493.46 brought forward from last year amounts to \$76,267.61, which your directors propose to appropriate as follows:—

To be written off: machinery account 10 per cent.	\$13,510.11
To be written off: property account 5 per cent.	12,352.04
	\$25,862.15
To be placed to reserve account	10,000.00
Dividend to shareholders 8 per cent.	35,528.00
Balance to be carried forward to 1914 account	4,877.46
	\$76,267.61

Rizal Cement Co. (P.I.).—The meeting of the shareholders of the Rizal Cement Company was held on February 3 at the Manila offices of Messrs. Ynchausti and Company. The report of the company shows that great progress is being made in building the plant, which it is expected will be completed by June of this year.

The report shows that P. 1,005,000 has been subscribed, P. 744,797.50 of which has already been paid up. There are no new shares for sale.

The Rizal Cement Company's plant is located at Matiquio, on the Laguna de Bay. Work was commenced on the plant last October, and up to the present time about one-third of the plant has been constructed, which includes the completion of the barrel manufacturing plant. The cement factory will be 91 meters by 94 meters, and the barrel manufacturing plant, which is now finished, is 50 by 30 meters. The wharf which will extend into the Laguna, will be 400 meters long and six wide. The height of the cement plant will be of different measurements, but at the highest point it will be 23 meters. In all the factories will utilize 10,000 square meters of space. All the work of building is being done by R. Machuca Go Tauco, who contracted to do the work for P. 340,000.

All the machinery has been purchased, which includes a cement plant purchased from Krupp of Magdeburg, Germany, for approximately P124,660; barrel making machinery from Anthon and Sohn of Flensburg, for P. 24,722; the locomotives and engines from R. Wolf of Magdeburg, Germany, for P. 86,878; the aerial cable conveyer from J. Pohlig, of Colon, for P. 58,460; the generators and electric motors from Bergmann and Company, of Berlin, for P. 38,500, and the brick making and refractory plants from Ewers and Sohn of Lubeck for P. 95,000; a grand total of approximately P. 340,720.

Chosen Gas Co.—At the ordinary general meeting of this Company the following profit and loss account was presented:—

	Yen.
Net profit for the term	55,886.324
Bonuses for officials and social expenses	5,580.000
Loss reserve	2,800.000
Balance	47,506.334
Brought over from last account	2,108.342
Total	49,614.676
Legal reserve	2,485.000
Secondary reserve	2,485.000
Dividend at 8 per cent	42,000.000
Carried forward to next account	2,644.676

New Philippines Incorporations.—Incorporation papers have been filed for the Calabaza Plantation Company, a concern organized on the island of Basilan by Japanese with a capital stock of P. 20,000 divided into 200 shares of a par value of P. 100 each.

The company will carry on a general trading and mercantile business on Basilan island in the Moro province.

TRAMWAYS

Shanghai Tramways.—The returns for the Shanghai Tramways (Foreign Settlement) for week ended January 28, are as under:—

	1914.	1913
Effective receipts (after deducting loss by depreciation of subsidiary coinage)	20,751.02	15,176.55
Passengers carried	1,068,820	743,932
Car miles run	61,872	50,350

The loss by depreciation of subsidiary coinage for the week was \$5,808.96 equal to 23.22 per cent. of the gross cash collected on the cars as compared with \$3,790.09, equal to 21.38 per cent for the corresponding week last year.

For month of January with figures for the corresponding month last year.

	January, 1914.	January, 1913.
Effective receipts (after deducting loss by depreciation of subsidiary coinage)	84,819.02	68,406.02
Passengers carried	4,370,762	3,325,303
Car miles run	261,624	223,890

Loss by depreciation of subsidiary coinage 23,313.20 16,579.04
Percentage of loss by depreciation of subsidiary coinage 22.71 20.82
Week ended February, 4.

	1914.	1913.
Effective receipts (after deducting loss by depreciation of subsidiary coinage)	19,392.60	18,120.54
Passengers carried	1,006,834	898,812
Car miles run	60,223	55,552

The loss by depreciation of subsidiary coinage for the week was \$5,668.92 equal to 23.84 per cent. of the gross cash collected on the cars as compared with \$4,627.93 equal to 21.50 per cent. for the corresponding week last year.

Week ended February, 11.

	1914.	1913.
Effective receipts (after deducting loss by depreciation of subsidiary coinage)	18,064.44	15,692.17
Passenger carried	936,060	754,213
Car miles run	58,122	47,947

The loss by depreciation of subsidiary coinage for the week was \$5,221.82 equal to 23.78 per cent. of the gross cash collected on the cars as compared with \$4,212.13 equal to 22.50 per cent. for the corresponding week last year.

Week ended February 18.

	1914.	1913.
Effective receipts (after deducting loss by depreciation of subsidiary coinage)	18,252.88	15,210.90
Passengers carried	954,050	750,250
Car miles run	61,019	50,661

The loss by depreciation of subsidiary coinage for the week was \$5,276.84 equal to 23.80 per cent. of the gross cash collected on the cars as compared with \$4,121.13 equal to 22.79 per cent. for the corresponding week last year.

For the month of February 1914, and for two months ended February 28, 1914, with figures for the corresponding periods last year:—

	Feb. 1914.	Feb. 1913.
Effective receipts	71,602.99	64,220.04
Passengers carried	3,736,688	3,167,583
Car miles run	235,318	203,830

Loss by depreciation of subsidiary coinage.	20,767.00	17,245.78
Percentage of loss by depreciation of subsidiary coinage.	23.88	22.54

	Two months ended Feb. 28, 1914.	Two months ended Feb. 28, 1913.
Effective receipts	156,422.01	132,626.06
Passengers carried	8,107,450	6,492,886
Car miles run	496,942	427,727

Loss by depreciation of subsidiary coinage	44,081.10	33,824.82
Percentage of loss by depreciation of subsidiary coinage	23.25	21.76
Week ended February 25.	1914.	1913.
	\$	\$

Effective receipts (after deducting loss by depreciation of subsidiary coinage)	16,197.01	15,244.40
Passengers carried	847,932	761,365
Car miles run	56,437	49,395

The loss by depreciation of subsidiary coinage for the week was \$4,685.52 equal to 24.00 per cent. of the gross cash collected on the cars as compared with 22.08 per cent. for the corresponding week last year.

Week ended March 4.

	1914.	1913.
Effective receipts (after deducting loss by depreciation of subsidiary coinage)	19,335.58	16,211.91
Passengers carried	1,021,269	816,090
Car miles run	60,118	52,370

The loss by depreciation of subsidiary coinage for the week was \$5,736.05 equal to 24.18 per cent. of the gross cash collected on the cars compared with \$4,510.51 equal to 23.21 per cent. for the corresponding week last year.

Week ended March 11.

	1914.	1913.
Effective receipts (after deducting loss by depreciation of subsidiary coinage)	17,393.30	15,520.80
Passengers carried	928,000	786,533
Car miles run	58,395	49,851

The loss by depreciation of subsidiary coinage for the week was \$5,200.91 equal to 24.45 per cent. of the gross cash collected on the cars as compared with \$4,415.34 equal to 23.55 per cent. for the corresponding week last year.

Nantao Tramway Co. (Shanghai).—The Chinese Tramway Company at Nantao held its first ordinary meeting on March 8. Mr. Loh Pei-hung, the manager, said the total amount of the receipts since the Company started in August to the end of December last year was \$35,751.87 and its expenditure was \$32,404.00. The net profit was therefore \$3,347.27. Owing to the fact that the capital of the company was \$200,000 only, Mr. Loh requested the shareholders to consider a proposal for raising another \$200,000 to extend its line. This proposal met with general approval among the shareholders, and will be carried out.

MINING

Tungchiakou Colliery.—The Tungchiakou Colliery is 10 miles northeast of Chinchou. It may be reached by sea from Dairen, the distance being 20 nautical miles northeast of Dairen. A trip in a steam-launch will take about two hours. The Colliery is located on the seashore and faces Meiyao Bay on the south. The water of this small bay rarely

freezes in winter and for this reason the Colliery is open to the access of vessels all the round. It is being worked by Mr. Oyamada, a Japanese resident of Dairen.

There are three layers of coal seams as far as it has so far been ascertained. The uppermost layer is about 3 ft. thick, the intermediate layer $3\frac{1}{2}$ ft. thick, and the bottom one $5\frac{1}{2}$ ft. thick.

A sample of the coal was recently analyzed at the South Manchuria Railway Co. Central Laboratory, Dairen. The result of the analysis are as under:—

Moisture	4.429 %
Volatile matter	9.891 "
Coke non-cohesive	85.680 "
Ash (light reddish yellow)	4.698 "
Fixed carbon	80.882 "
Sulphur	0.764 "
Specific gravity	1.442 "
Calorific value	7.635 "
(Parl formula)	

The coal is a semi-anthracite and seems rather deficient in low ash and sulphur, but contains a high percentage of moisture.

It is rather brittle and, while in combustion, it gives a grey smoke in a very small quantity. It emits but little offensive smell. All being considered, it is highly suited for the manufacture of briquettes.

At present the colliery is being worked on an experimental scale and without the use of modern machinery. The obsolete native methods are being followed in excavating shafts and inclines. So little gas is produced in the pits that no artificial ventilators are deemed necessary and the natural draft is thought to answer the purpose quite well. The water in the pits is also so light that it can be removed by hand. For immediate purposes pumps are to be installed against rainy weather.

Federated Malay States Tin Exports.—The complete statistics of F.M.S. tin exports during 1913 is to hand and contains the following totals, cents and catties being omitted:—

Total Tin	
	1913. 1912.
	pcls. pcls.
Perak	493,966 477,240
Selangor	258,825 255,381
N. Sembilan	31,658 29,070
Pahang	57,678 51,778
Total	842,129 813,472

Value in Singapore.

	1913 \$	1912 \$
Peak	49,077,467	49,352,508
Selangor	25,602,609	26,394,756
N. Sembilan	3,155,909	2,998,021
Pahang	5,717,631	5,378,456
Total	83,643,617	84,123,743

Penchiu Colliery & Mining Co.—At the recent general meeting of the Penchiu Colliery & Mining Co., the Company's capital was increased by Y.3,000,000 to Y.7,000,000. Of this increased amount Y.1,000,000 is to be used for the proposed extension of the mining operations, and the remainder for the proposed manufacture of steel. Y.1,500,000 is to be paid in during the current year and the rest in the course of about three years.

It is understood that the concession for constructing the Penchiu-Chienchang light rail line has been transferred to the Company only in name, the Company having no intention to work the light rail line. It means to let some one experienced in that business undertake both construction and management. The Company will of course secure some privileges when the line is completed.

The Company's program of extension aims at putting out a sufficiency to supply the annual amount of 600,000 tons which will be wanted by the steel works after the program there-

for has been completed, and also to meet the demands from the Japanese Navy and the various steel works in Japan.

The iron mine at Penchiu is very rich and it is anticipated that it will be possible to produce about 50,000 tons of pig iron a year after the first part of the working program is finished.

Mineral Output in Chosen.—The mining industry in Chosen has shown a remarkable development of late years. In 1912 the peninsula exported gold to the amount of 9,400,000 yen. The export of other metals also reached a total value of 10,000,000 yen. The figures given below show the amount of gold purchased by the Japanese mint during the last five years.

	Output at home Kwan.	Output in Chosen Kwan.
1908.....	1,069	960
1909.....	1,226	1,184
1910.....	1,212	1,711
1911.....	1,120	1,849
1912.....	1,440	1,440

As will be seen from these figures, the output of gold in Chosen is increasing year by year, while that at home remains practically the same. The output of alluvial gold in Pyangan-do is also on the increase. At Sanan the yearly output amounts to 140 kwan. Changsong yields 135 kwan of alluvial gold every year.

The industry presents some degree of similarity at Tsan-ju, Kaisong, Nyongpyong, and Funsan also. Chosen supplies some 150,000 kwan of iron to the Yawata Iron Works against 300,000 kwan of the supply from Tayeh in China.

Gumaos Placer Co. (P.I.)—The annual meeting of this company was held at Manila on February 7. The General Manager's report showed the past year to have been a prosperous one. The actual receipts from bullion shipped were P.418,342, notwithstanding that nearly three months of the year were spent in going through barren ground in order to get the dredge into place. The best single month's work produced P.73,657 and the best twelve months' run since the starting of the dredge yielded P.538,964.

Kailan Mining Administration.—The total output of the Administration's mines for the week ended January 17, amounted to 52,200.15 tons and the sales during the period to 46,631.56 tons.

Week ended January 24, output 20,780.17 tons, sales 46,766.71 tons.

Week ended January 31, output 4,212.89 tons sales 17,164.90 tons.

Week ended February 7, output 31,553.27 tons, sales 34,067.69 tons.

Week ended February 14, output 41,409.42 tons, sales 46,885.66 tons.

LIGHT AND POWER

Extension in Tokyo.—Sanction has been obtained for another foreign loan for electric works in Tokyo. By this means it is intended to raise the mileage of the tramway track from 150 to 200, the number of cars from 1,300 to 1,700, and the number of lights from 280,000 to 460,000. At present the foreign market is not easy enough to make borrowing on easy terms possible, so immediate needs are to be supplied by a syndicate of Tokyo bankers.

New Japanese Company.—A plan is now in progress for the generation of hydro-electricity of 2,600 horse-power by means of the river Natsui, Kawasaki-mura, Ishikirigori

in Fukushima Prefecture, Japan. The capital to be invested amounts to 500,000 yen in all, or 144 yen for each horse-power. The business is to supply electricity and light and manufacture carbide.

Electricity Plant at Fushun Collieries.—The electric plant in connection with the three shafts at the Fushun coal mines has a capacity of 4,500 kilowatts, and the demand for current for operating the light electric railway has made it necessary to increase the capacity of the plant by 3,000 kilowatts. The installation of the supplementary power plant is now under way and will be completed by the end of the year. The electric railway mentioned will also be brought to completion in the near future, and it is expected that the new power plant will supply current in January, 1914. The increasing output of the collieries will necessitate the installation of additional power in the near future, and it is thought that a capacity of at least 13,000 kilowatts will eventually be required to operate the lighting system and provide the needed motive power.

HARBOURS, ETC.

Dalny Harbour.—The appropriation for the South Manchuria Railway Co. Harbour Works Office for the next fiscal year will be about the same as that for the present fiscal year,—about 3,000,000 yen. The principal items of work will be the reclamation of the shore front at the east of East Quay, the construction of the Northwest Breakwater, the reconstruction of the quay wall on the west side of Main (West) Quay, and the construction of the new third quay to the west of Main Quay. These are all continuations of work now in progress.

SHIPBUILDING

The Taikoo Dockyard.—The steamer *Wu-chang*, built for the China Steam Navigation Co., has been successfully launched at the Taikoo Dockyard. The vessel is of the awning deck type, the principal dimensions being as follows:—Length over all 331 feet, breadth moulded 46 feet, depth moulded to awning deck 23 feet 3 in.-hes, gross tonnage about 3,200. The Wuchang is built of Siemens-Martin steel to Lloyd's scantling for special service and equipped to Board of Trade requirements. There are four decks, viz:—upper, awning promenade, and shade. The upper and awning decks run continuously from stem to stern, and the promenade and shade deck from midships to stern. The 'tween decks are arranged for cargo, and have special rooms for carrying mails, silk, opium and treasure.

Accommodation is fitted in a large steel deckhouse on the awning deck for Chinese passengers—16 first class, 36 second class and 154 third class. The crew are berthed forward under the awning deck. Two wood houses are fitted on the promenade deck, one forward for the Captain's accommodation, and one aft containing officers' and engineers' room and dining saloon. The wheel house pilot rooms are fitted in a wood house at the forward end of the shade deck. The vessel will be fitted with all the latest appliances for working cargo, including a special derrick for lifting heavy weights. A steam steering engine is placed on a platform in the engine room, with control shaft leading to the bridge, and there is also provided a steam windlass for working the anchors and cable, two powerful steam winches for working cargo, and a steam capstan aft for the handling of the vessel. Electric light and steam heating will be installed throughout the vessel.

Two sets of triple-expansion engines of the builder's own make are being installed, capable

of developing 1,600 I.H.P. steam being supplied by two large cylindrical boilers working under forced draft on the heated-air closed-ashpit system, the steam used being superheated by Schmidt's system. The vessel is expected to develop a speed of 12 knots on trial.

Other vessels of about similar capacity are at present in course of construction at Taikoo.

Kiangnan Dock and Engineering Works.

—Orders have been placed by the Kailan Mining Administration with the Kiangnan Dock for an ice-breaker to deal with the ice in and around the port of Chinwangtao. They have also placed with the same firm an order for a dredger and dredging plant to deepen their harbour to thirty feet at low water. The Russian Government has also contracted with this firm for the construction of two powerful ice-breakers for Vladivostok.

WIRELESS

Station Near Kalgan.—Under instructions from the Ministry of Communications a wireless station has been erected north of Kalgan under the superintendence of Mr. Joh. Hansen, of the East Asiatic Wireless Telegraph Co., Ltd., Shanghai.

Primarily the station is for the convenience of the military forces in this disturbed district, as by its means communication can be easily and quickly established with the station outside the eastern wall at Peking. It will also serve as another link in the chain of wireless which is rapidly being thrown around and across China, for several smaller shore stations have already been fitted up for the Chinese navy. There will shortly be one at Woosung and others have been sanctioned for more southerly districts.

The Kalgan station is of the most modern type and no difficulty has been found in communicating with both Peking and Tsingtau. It has a five kilowatt plant, with an autotype motor of 28 horse power and has comfortable residential quarters for the staff, who are all Chinese, and servants.

It stands in the old camping ground, about half-an-hour's journey from the railway station. The work of building and equipping the station was by no means easy, owing to the nature of the country and a special railway track had to be laid down from the station for the transportation of the materials and apparatus after they had been brought up from Tientsin by rail.

FINANCIAL

Hongkong and Shanghai Banking Corporation.

—The half yearly meeting of shareholders was held at Hongkong on February 14th under the presidency of Mr. S. H. Dodwell. In the course of his address he said:—It is gratifying to your directors to be able to meet you again with a report showing a prosperous state of the affairs of the Bank, and an excellent result of the half-year's working. I cannot help remarking that these results are to no small extent due to the wisdom and foresight of our predecessors, in steadily strengthening the position of the Bank by building up its reserves, thus enabling us to do our share in the financing of an increasing trade in the various places where the Bank is established, and to show such satisfactory figures, notwithstanding the keen competition of the present day. Since 1908, the amount paid away in dividends has been £510,000 per annum, representing a high percentage on our capital and reserves. The margin between that large amount and the net profits does not always permit of the reserves being increased on the

same scale as in former years, but we are generally in a position to put aside something, and, looking to the future, your directors are convinced that the sound policy of the past should be adhered to, and in good times, when there are surplus profits available, we should continue to build up the reserves of the Bank. The statement of accounts now before you shows a net profit for the half-year's working of \$3,324,438.10, to which has to be added \$2,052,482.91, brought forward from the previous half-year, making a total of \$5,376,921.01 available for appropriation, which your directors recommend be dealt with as follows:—Dividend for the half-year of £2 per share and a bonus of 5s. per share; \$200,000 added to the silver reserve fund and \$300,000 written off Bank premises account. The balance of \$2,067,311.85 to be carried forward to the new profit and loss account. I trust, gentlemen, this distribution will meet with your approval. (Applause.)

As you will notice from the report, our sterling reserve fund investments have again made a claim on the profits. At the end of the half-year the price of Consols stood below our book value of 72, and it was thought advisable to write our holding of £1,200,000 down to 71, and at the same time write down "other sterling securities" by £12,000. This reduced the book value of the sterling reserve fund investments to £1,476,000, and in order to bring the amount up to the full value of the fund, viz., £1,500,000, we purchased £25,000 Australian and New Zealand stocks, which have been placed in the books at £24,000. The cost, viz., £24,356. 2s. 9d., at 1/11, 3/16—\$252,095.87, was met out of the half-year's profits I think you will agree that it is a wise procedure to have investments written down to a figure inside market prices, at the time of closing our books. (Applause.) The recent sharp recovery in the price of first class stocks, such as our investments are composed of, makes us hopeful that the bottom prices have at last been touched. At any rate, considering our present book values, any further adjustments which may be necessary should be on a small scale, and not prove a heavy tax on profits.

Bank premises account, which we recommend writing down by \$300,000 stands at \$68 lacs, the increase during the half-year being more than was anticipated when I addressed you in August last, owing to the cost of the London premises exceeding the amount estimated. We moved into the new building in London in October, and the offices have proved most satisfactory in every way. The building is one the Bank may well be proud of and the architect and builders are to be congratulated on the efficient and expeditious manner in which the work was executed. (Applause.) We have recently arranged for the purchase of the building in which we occupy offices in Calcutta, as well as the adjoining lot, thus providing for our requirements there for many years to come. The price is about Rs. 8½ lacs, and as we shall have to build on the extra lot, the total outlay will be a considerable one, but well justified in the opinion of your directors. The Bank has now secured premises in nearly all the places where it is desirable to have its own property, so, as far as can be seen at present, there is no heavy expenditure ahead, except for purposes of rebuilding which may be necessary in the near future in one or two ports. I shall not refer further to the balance sheet, as there are no items of marked importance calling for comment. I would mention that your directors are well satisfied with the loyal and able manner in which the staff have worked, and I think you will heartily endorse our action in voting them a bonus of 10 per cent. on their salaries for the past year. (Applause.) I am pleased to say that all of our offices have done well and, with the exception of Bangkok, have been free from losses. The loss at Bangkok was due to trouble amongst some of the rice millers, whose bills on Hongkong and Singapore have been dishonoured, and also to the dishonesty of our own and other Banks' compradores at that place. The amount involved is in the

neighbourhood of \$6 lacs, and although we hope to recover part of this, full provision has been made in the meantime.

Speaking generally, conditions during the latter half of the past year, like the first six months, were favourable for banking business. Trade continued active, and money in strong demand at remunerative rates in all gold countries. We have had no idle funds in countries working on a gold or fixed exchange basis, as surplus money could be transferred to the most attractive markets without any undue exchange risk. In China, however, the case has been different, as the large accumulation of silver funds could not be utilised, and had to remain more or less idle in Shanghai and the other financial centres. Notwithstanding this unfavourable factor, business, on the whole, was satisfactory both here and in the North. The Canton silk trade experienced a flourishing year, and probably merchants generally have done fairly well in South China, both as regards imports and exports, though, with the exception of silk, the turnover may not have been on a very large scale. In the Yangtze Valley and the Northern provinces, crops were not quite so good as those of the previous year, but the volume of business was well maintained. The year closed with both import and export trades in a favourable position, and a hopeful feeling prevailing as to the immediate prospects in the North. A serious handicap to trade, however, is the chaotic state of Provincial note issues, to which I am referring later. Kwangtung appears to be suffering in a much greater degree than any other Province in this respect; the steady decline in the value of provincial notes in Canton (the present quotation being about 60 per cent. of their face value) is naturally having a very depressing effect on trade in South China, and until the finances of the Province are put on a sound basis, the business outlook, locally, will continue, to be somewhat gloomy. General conditions in China during the six months under review may be said to have shown a marked improvement. An attempted rebellion in the Yangtze region last autumn necessitated the assertion of its authority by the Central Government, and the firmness with which the outbreak was quelled has gone far to restore that confidence in the country which is a necessary condition of prosperous trade. The result has been seen in the largely increased receipts of the Maritime Customs during the latter months of the year, the collection for 1913, in fact, exceeding all previous records, and the Customs administration has performed the unprecedented feat of paying the entire service, not only of the ordinary foreign debt secured upon its revenues, but also of the Boxer indemnity, an obligation which, in previous years, has had to be largely met by contributions from the salt and other taxes. With regard to the salt revenue, its receipts under the new administration have exceeded the most sanguine expectations, although the reforms introduced under the able guidance of Sir Richard Dane can only be said to have become effective during the last few months of 1913. Given a continuance of present conditions, it is anticipated that the collection of the current year will yield, on a conservative estimate, a large surplus, which will be available as security for the further borrowing which China must yet undertake in order to carry to its completion her programme of reform. The reorganised Salt Gabelle bids fair, in fact, to rival the Maritime Customs as a great national asset, and illustrates, as does that administration, the advantages which will accrue to China by the employment of foreigners of high character and administrative experience, in the great task which lies before her.

Foremost among the problems with which China has to deal are those of currency reform, and the conversion and rehabilitation of the heterogeneous note circulation with which the provinces have been flooded, the steady depreciation of which, unsupported as it is by any reserve, presents a danger of daily increasing gravity to the country. Enhanced prices, contracted credit and widespread discontent are

the inevitable results of such a state of things, and all other measures of reform become futile until this evil is removed. I may add that the two measures to which I have referred, namely, currency reform and the redemption of the paper currency, as well as the question of the repayment of outstanding short term foreign loans, many of which are now overdue, are at the present moment under the serious consideration of the Chinese Government in consultation with the Five Groups, and a scheme is in preparation which it is hoped will furnish an effective solution of these pressing problems.

Bank of the Philippine Islands.—The Bank of the Philippine Islands held its annual meeting on February 10 when the following officers were selected for the ensuing year:

John S. Hord, president; Eliseo Sendres, vice president; directors, Messrs. E. Calixto, L. Criado, F. de Errazuin, T. L. Hartigan, F. Llanos, M. Velasco, P. C. Whitaker, Felix Roxas.

The usual semi-annual dividend of five per cent was declared.

Singapore Municipal Loan.—Of a loan of \$2,000,000 at 4 per cent, offered by the Singapore Municipality only about \$1,000,000 was tendered for at 90.

Reported Kirin Loan.—A Peking paper reports that the Civil Governor of Kirin is negotiating a loan of \$10,000,000 with Messrs. Diederichsen and Company. The Governor specially sent Commissioner Jao of Finance to Peking for the purpose of consulting with the Ministry of Finance regarding the terms of the loan and the expenditure of the proceeds. The greater portion of the proceeds will be used to redeem the paper money which causes trouble on the market in Kirin. It is said that the Ministry of Finance has approved of the loan.

The Bank of Taiwan.—At the ordinary general meeting of Shareholders of this bank, the profits for the term ended December 31, 1913, were ordered to be disposed of in the following manner:—

	Yen.
Gross earnings for the term ..	4,802,909.55
Gross disbursements ..	4,208,835.31
Balance ..	587,634.24
Brought over from last account ..	237,669.33
Total ..	826,743.57
Loss reserve ..	130,000.00
Reserve for equalizing dividend ..	30,000.00
Special reserve ..	20,000.00
Bonuses for auditors and directors ..	32,000.00
Dividend at 10 per cent ..	375,000.00
Carried forward to next account ..	239,763.50

The establishment of branches at Penang and London was agreed to.

Yokohama Specie Bank.—The sixty-eighth half-yearly meeting of the Yokohama Specie Bank was held recently at Yokohama. The following report to shareholders was submitted:—

The gross profits of the Bank for the last half year, including yen 1,229,768.96 brought forward from the last account, amount to yen 23,466,476.79, of which yen 20,048,988.11 have been deducted for interest, taxes, current expenses, rebate on bills current, etc., leaving a balance of yen 3,417,488.68 for appropriation. The directors proposed that yen 350,000 be added to the reserve fund and recommend a dividend at the rate of twelve per cent, per annum, which would absorb yen 1,800,000. The balance, yen 1,267,488.68 was carried forward to the credit of the next account.

New Business Enterprises in Japan.—The "Japan Chronicle" reports:—The total amount of capital invested in new enterprises last year, according to investigations made by the Bank of Japan, amounted in round figures to Yen 380,000,000. Of this, Yen 183,000,000, was for new companies, Yen 142,000,000 for extensions to existing concerns and Yen 54,000,000 represented debentures or temporary loans. Compared with the preceding year the amount of capital invested in new companies showed a decrease of Yen 150,000,000, and extensions of existing concerns a decrease of Yen 4,000,000, but temporary loans and debentures increased by Yen 12,000,000, or a net decrease of new capital invested in business of about Yen 140,000,000. There has thus been a slackening in the activity previously shown in starting new enterprises. The increase in debentures and loans indicates that the handicap on new enterprise consisted largely in the unfavorable state of the money-market, which put a check on the formation of new companies and the extension of existing ones. The amount of capital invested in new companies last year compares with previous years as follows:—

1909 ..	128,257,000
1910 ..	487,000,000
1911 ..	301,139,000
1912 ..	521,108,000
1913 ..	380,373,000

Bank of Japan.—The accounts of the Bank of Japan for the last half-year show a net profit for period of Y. 5,037,646, including Y. 2,122,924 surplus brought over. The profit has been disposed of as follows:—

Dividend on old shares, 6 per cent, per annum ..	Y. 900,000
Dividend on new shares ..	225,000
Legal reserve ..	400,000
Reserve for depreciation of property ..	15,000
Bonuses to officials ..	180,000
Second dividend on old shares, 6 per cent, per annum ..	900,000
Second dividend on new shares ..	225,000
Carried forward ..	2,192,646

Banque Industrielle Loan.—It was recently reported from Paris that the Chinese loan of f.150,000,000 recently concluded by the Banque Industrielle de Chine was to be issued there towards the end of March through the Credit Francais. It was intended to offer it at f.472½ or at 94 to 94½ per cent. The proceeds are to be used for constructing the port of Pukow and other works, but the money will only gradually be forwarded with the progress of the work.

PERSONAL

The following appointments have been made by the Government of the Philippines:—Public Utility Commissioners, Senor Mariano Cui (chairman) Messrs. Stephen Bonsal and Clyde De Wilt; Secretary to the Governor-General, Mr. Samuel Ferguson; Deputy Collector of Internal Revenue, General Venancio Concepcion; Judge of the Court of First Instance for the 7th Judicial District, Solicitor-General George R. Harvey; Solicitor-General, Delegate Refael Corpus; Member of the Code Committee, Delegate Macario Adriatico; Judge of the Court of First Instance of Mindanao, 14th Judicial District, Judge George N. Hurd; Judge at Large for the Court of First Instance, Judge B. Revilla; Justice of Peace for the City of Manila, Jose Generoso.

Sir Everard Fraser, K.C.M.G., H.B.M. Consul-General at Shanghai returned from England in February and resumed office.

Mr. B. G. Tours, C. M. G., until recently H. B. M.'s Consul at Nanking, has temporarily assumed charge of opium affairs in the British Legation at Peking while Mr. E. C. Wilton is acting as Chinese Secretary.

It is reported that Mr. Beilby Alston's place as Councillor at the British Legation will be taken by Mr. James William Ronald Macleay, who for the last three years has been First Secretary at Brussels, and who previous to that was in Brazil.

Mr. W. B. Cunningham, Acting-Consul at Dalny, has been transferred to the Embassy, Tokyo. Mr. R. Boulter, attached to the British Consulate-General, Kobe, is to succeed him, pending the return of Mr. Harold G. Parlett (Consul at Dalny) from Tokyo.

Judge S. Lobingier, formerly Judge of the Court of First Instance in the Philippines, has been appointed Judge of the United States Court in China.

Mr. Charles L. L. Williams has been appointed American Consul at Dalny.

As the construction of the Philippine Railway in Iloilo and Cebu has been completed, Mr. William B. Poind, Vice-President and Chief Engineer, has resigned. His post will be taken by Mr. R. R. Hancock, at present General Superintendent.

We regret to record the death at Hongkong on March 12 of Mr. Gustav Friesland, managing partner of the Hongkong office of Messrs. Melchers and Co. Mr. Friesland was a director of the Hongkong and Shanghai Banking Corporation and a number of other companies.

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Stokers

Babcock & Wilcox Ltd.

Structural Steel

Bohler Bros. & Co.
Shanghai Dock & Engineering Co., Ltd.
U. S. Steel Products Co.

Sugar Machinery

Honolulu Iron Works.
A. F. Craig & Co.

Superheaters

Babcock & Wilcox Ltd.

Tanks

Pacific Tank and Pipe Co.
Shanghai Dock & Engineering Co., Ltd.
U. S. Steel Products Co.
A. F. Craig & Co.

Telephones

The Western Electric Co.

Textile Machinery

A. F. Craig & Co.

Tiles and Bricks

Green Island Cement Co., Ltd.
Chinese Eng. Mining Co.

Tobacco Dealers

British-American Tobacco Co., Ltd.
Cia. General de Tabacos
Olsen & Co., Walter E.

Tools

American Tool Works Co.
Lodge & Shipley Machine Tool Co.
Shanghai Machine Co.
Easterbrook Allard & Co., Ltd.
The Selson Engineering Co., Ltd.
Shanghai Dock & Engineering Co., Ltd.

Windmills

Defiance Machine Works.

Water Softeners

Babcock & Wilcox Ltd.

Wood Working Machinery

American Tool Works Co.
Defiance Machine Works.
Lodge & Shipley Machine Tool Co.
Shanghai Dock & Engineering Co., Ltd.